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I have considered that among Artisans good Apprentices are most likely to make good Citizens.—Benjamin Franklin.

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PRACTICAL APPRENTICESHIP FOR PRINTERS

SUGGESTIONS CONCERNING THE
TRAINING OF APPRENTICES
FOR THE PRINTING CRAFTS

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UNITED TYPOTHETAE OF AMERICA
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FOREWORD

Practical Apprenticeship for Printers is a compilation from many sources for the guidance of all who may be interested in the training of Apprentices for the Printing Crafts.

It has been especially prepared for the use of local Typothetae Apprenticeship or Educational Committees and is the official United Typothetae of America handbook upon this subject.

An index of the contents of this book will be found on pages immediately following.

It is hoped that, through the medium of this publication, the education of Printers' Apprentices will be given a new impetus that shall be of lasting good to the Printers of America, and that the training of Printers' Apprentices will be standardized in accordance with the recommendations herein.

A series of instructional units, including students' lesson sheets and instructors' guides has also been compiled, and is available to local committees and authorized instructors. See page 43.

The United Typothetae of America Department of Education stands ready to be of assistance to all local Typothetae Educational Committees who are urged to refer their plans and problems to the Department. See page 149.

UNITED TYPOTHETAE OF AMERICA
DEPARTMENT OF EDUCATION

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UNITED TYPOTHETAE OF AMERICA
Chicago, Ill.

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He that understands not his employment, whatever else he knows, must be unfit for it; and the public suffers by his inexpertness.—William Penn.

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Part I

THE MEANING OF APPRENTICESHIP

He that hath a Trade hath an Estate; and he that hath a Calling, hath an Office of Profit and Honor.—Benjamin Franklin.

REVIVAL OF APPRENTICESHIP

Industrial education is to-day the principal educational theme in this country. Employers, business managers, superintendents, thoughtful craftsmen, educators, economists, social workers, men and women in a hundred walks of life, have focused their attention, with growing earnestness, upon the problem. Discussions, proposals, and theoretical and practical experiments are gradually leavening the great mass of our industrial life. Through it all runs a common conviction that something should be done—must be done—to educate the coming workers in a specific and direct way for the work they are to do. It is agreed by all that the time has arrived for the development of a genuine industrial intelligence in the manhood and womanhood of America, that industrial training is a paramount economic demand of our time. This is clearly evidenced in the reports of Federal and State Commissioners and Boards of Education; in National, State, and Municipal legislation; in industrial training conferences; in the establishment of shop and corporation trade schools; in the growing number of public and semi-public industrial schools; in the establishment of apprenticeship and industrial education committees by trade associations; by frequent articles in the public press and trade press, and in many other ways.

Raise the standard of skill in the workman. Improve the tone of industrial morality. Give the greatest number of individuals the opportunity to "live a full and ample life." These are some of the urgent demands of the time.

Before our modern factory system came into vogue most workmen were artisans, masters of their craft; they knew how to perform and could perform the successive stages in the production of a given article. The old trade guilds fostered the apprenticeship system, and it was difficult for anyone to become a member of a guild who had not passed through all stages of development. In fact, the laws and customs of Western Europe especially required that any person desiring to exercise certain branches of skilled labor must serve an apprenticeship. The invention of labor-saving machinery and the introduction of the modern factory system wrought a great change in craftsmanship, and the laws and trade customs formerly governing the apprentice became largely inoperative and obsolete.

Up to within a few years apprenticeship, that is, a type of the old-world guild apprenticeship with its indenture covering a specified time, was little practiced, and the propagandism for industrial education largely ignored it. The beginning of its decline dated from the industrial revolution which took place during the latter part of the eighteenth century, resulting from the introduction of labor-saving machinery and the sub-division of labor.

The new industrial system developed the specialist,—he who could do but one thing and must perform this one operation day after day and year after year. It separated by a strong line of demarcation the skilled worker from the unskilled, and so rearranged the processes of manufacture that the various stages of production became distinct vocations, the workers in a given department of manufacture being quite ignorant of the work performed in other departments. In consequence of this factory system, and the division and sub-division of processes, the great body of workers of necessity became unskilled machine-tenders. To overcome this lack of industrial mastery in the great mass of industrial workers, modern employers resorted to many devices, most of which have centered around the employment of skilled supervisors to plan and direct the work and movements of groups of employees. But all of these devices simply emphasize the fact that machinery without trained intelligence to guide it cannot be fully productive, nor the quality of its product raised to the highest standard.

This condition of affairs has not been overlooked by intelligent employers, nor have the serious aspects of a nation containing large bodies of untrained men and women been lost sight of. For some years the growing seriousness of this situation has been receiving the careful thought and study of progressive employers and farseeing educators, and out of the many hundreds of ideas, plans, and systems which have been discussed and tried out, in whole or in part, certain basic things are making themselves manifest.

It is agreed that no matter how complex the machine, nor how automatic it may be, *the worker is the essential factor.*

A leading manufacturer expressed the situation in a nutshell, recently, when he said that manufacturers are coming to the conclusion that "the man at the machine is the most important asset, who spells success or failure for any business."

Employers also are now realizing that economical production consists of much more than the mere repetition of machine operations—that it requires a measure of skilled guidance *plus* the machine operations.

This conclusion has caused a search for a remedy and out of all the discussions and studies upon this subject there has gradually grown up a demand for a revival of apprenticeship in practically all industries.

As the late Carroll D. Wright well said in his bulletin, "The Apprenticeship System," prepared for the United States Bureau of Education, "It is unwarrantable to argue that the Apprenticeship System answers the whole demand for industrial education—but it may do so to a large degree. It is also needless to argue

that the industrial schools furnish everything in the way of vocational equipment that can be gained by a thorough Apprenticeship System. What is needed is . . . some co-ordination that shall secure all that can be gained from the Apprenticeship System and much that can be gained from modern schools for trade and industrial education generally."

DEFINITION OF APPRENTICE

What is an apprentice? The dictionaries give the answer very clearly. Webster says, "One who is bound by indentures to serve a mechanic, or other person, for a certain time, with a view to learning his art, mystery, or occupation, in which *his master is bound to instruct him.*"

Worcester says: "A person bound by indenture for a certain time, to perform services for a master, and *receiving in return instruction in his trade or occupation.*"

The Century Dictionary says: "One who is bound by indenture to serve some particular individual or company for a specified time, in order to learn some art, trade, profession, manufacture, etc., *in which his master or masters become bound to instruct him.*"

And the Standard Dictionary says: "A person, usually a minor, *who serves another in order to learn a trade, art, or profession,* especially when bound by indentures for a term of years."

In view of the foregoing it is incumbent upon the employer to exercise a personal interest in his apprentices and this duty no employer can escape.

PERSONAL INTEREST OF EMPLOYER

No apprenticeship system nor any scheme of industrial training can be successful without the *active* interest of the employer. The employer's active interest is the key to the situation. And note that it says *"active* interest," because the problem of creating an industrial intelligence in the workers who shall man the employers' shops is essentially an employer's problem and cannot be wholly left to pedagogic guidance. There must be a point of live contact between employer and apprentice.

Many employers flatter themselves that they are too busy to assume any responsibility for apprentice training, and defer their attention to suit their convenience. On the other hand, labor unions seek to restrict the number of apprentices in order that they may control the situation. Also many employers have practically no apprentices, depending upon "the market" for their labor supply. They seek the men whom some one else has trained. This method of obtaining competent workers is akin to stealing from another employer who, in turn, will do likewise.

Years ago employers heeded their responsibilities when each journeyman master initiated an apprentice into the trade, but as specialization became more pronounced and individual responsibility became merged into corporate management, apprenticeship training received very slight attention upon the part of employers or corporation officials.

If one will but study the history of juvenile labor he will find that old-time laws laid emphasis on the obligation of the master to the young person employed. It was a two-fold responsibility; the master was answerable for the health and moral development of the lad while in his employment, and for his service to the State and career as an adult, since this service and his career depended on his physical, moral, and technical training as a boy.

The interest of the employer in his apprentices will foster and develop a spirit of loyalty and integrity possible in no other way. It will assure the young worker of a "square deal" and prevent favoritism or other unhappy circumstances standing in the way of his advancement. It will do much to dissipate the feeling that the only interest an employer has in his workers is the money gained from their labor. It will develop a wholesome spirit of productive rivalry and build up a type of efficiency which cannot be obtained otherwise.

Of course, it is not to be expected that every employer can personally interview all applicants for apprentice situations in his works, nor that he can personally instruct his apprentices, but he can keep close to the situation by personal supervision of his apprentice department.

Boys are impressionable and if "the boss" evinces a frequent personal interest in their progress and well-being, they will repay it many times in a quickened interest in their work, in loyalty, in steadfastness, and even in affection.

The Greek philosopher, Epictetus, in his discourse upon Citizenship, pointed the way for modern employers when he said, "You will do the greatest good to the State if you shall raise not the roofs of the houses, but the souls of the citizens. For it is better that great souls should dwell in small houses than for mean slaves to lurk in great houses."

APPRENTICE TRAINING UNDER COMPETENT SUPERVISION

Apprenticeship instruction as applied to modern conditions seeks to train for higher efficiency, not simply to train raw recruits to perform the operations now being done by the average workman. To obtain this higher efficiency apprentice instructors must be specially selected for—

Knowledge of the trade, including its historical, theoretical, and practical aspects;
Interest in teaching by constant study to add to their knowledge;
Moral character.

Inefficient workmen, who have to deal with inanimate materials, are never retained in a shop. Therefore how much more important it is that those selected to deal with a material vastly more precious than wood, metal, leather, or stone, namely, the human material, be chosen for their proven capabilities!

It is in the selection of competent instructors or supervisors that the employers' interest, as previously discussed, should be first manifested. While the small shop employer cannot afford nor be expected to employ a high-salaried apprentice instructor, the large shop employers should seek out the best available teaching talent that will combine thorough knowledge of the industry with instructional ability. It is rare that these combined qualifications can be found in any one individual, consequently, the large shop employer may find it necessary to employ several instructors. Whenever a workman is selected to supervise the apprentice training he should be chosen for his special skill and, before undertaking to instruct, should receive a course of instruction himself, so that he may know how to correctly classify the theories and practices of his trade in such a way that the young mind may absorb the successive steps of manufacture.

Without competent supervision the apprentice will probably be exploited to the disadvantage of himself and his employer. For instance, if the boy is left to the care of the average shop foreman it will quickly become evident that the ideals of foreman and apprentice are at cross purposes. The apprentice is intent upon learning the trade. The foreman understands his job to be that of keeping down the cost of producing. Consequently he will look upon the boy either as an unwise burden on his department, or, accepting him as a necessary evil, will compel him to perform certain duties that have no relation to trade instruction. He may even keep the boy constantly employed at some given operation because of a special acquired proficiency instead of advancing him through the various stages.

A similar condition usually results when the boy is turned over to a journeyman worker. In this case the most the boy can hope to acquire is the limited knowledge possessed by the journeyman; and the latter is liable to do one of two things: either use the boy as a helper without regard to progressive instruction or deliberately prevent the acquirement of knowledge because of ignorance or prejudice.

Employers will find that it will be quite necessary to educate their foremen to give apprenticeship its rightful place in the plant,

as well as to impress upon journeymen workers that the boys under training are to receive special consideration.

Large employers of labor can prevent exploitation of the boy by the employment of supervisors who have special competency for this work and by the establishment of a rule, practiced successfully in a number of shops, namely, that during the period of apprenticeship the apprentices are under the jurisdiction of the supervisor rather than the foreman, and the shop work selected for the apprentice must be of an educative nature, an industrial curriculum over which the supervisor has full control.

In small shops the employer himself can and should supervise the work and study of his apprentices, directing foremen or journeymen as to what they shall teach and how the instruction is to be given.

PRACTICAL TRADE TRAINING AND APPLIED TECHNICAL INSTRUCTION

Nearly all the larger concerns which have a modern apprenticeship system provide academic work to supplement the work in the shop. It is recognized that the object of an apprenticeship system is to teach the boy a trade, and that the trade cannot be properly learned unless the boy knows the mathematics, mechanics, theories, and business methods which accompany the trade. This instruction is given generally in a schoolroom connected with the factory or shop.

The great mass of industrial workers have only a small amount of manipulative skill; the work which they perform is often meaningless to them. Modern apprentice instruction, by a proper correlation of practical trade training and applied technical instruction, seeks to impart a thorough all-round knowledge, not only of the actual manufacturing processes but the reasons that lie behind. Technical education as combined with apprentice instruction is simply the education necessary to enable the boy to become an intelligent workman—one who can see the principles underlying the methods of work—one who can give a reason for doing a thing in a certain way and who does not blindly follow a certain rule. Technical education is the mental training of the apprentice so that his understanding may be fully awakened.

That there is great need of awakening this intelligence is easily seen when one considers that most of the boys and girls who seek industrial employment are deficient in even the common fundamentals which are popularly called the "three R's"—reading, 'riting, and 'rithmetic, and this condition is not confined by any means to boys and girls, but extends likewise to older students.

Be that as it may, the employer is confronted with the task of securing his supply of beginners and junior workers from an

untrained host, and if the findings in the published report of the Commission on Vocational Education created by the Sixty-third Congress are correct, or even approximately correct, that 85 per cent. of all the children that enter the public schools of the country leave the schools before they reach the age of 16; that not over 8 per cent. of those who enter the high school ever get through and take the diploma; that not over 3 per cent. of those who are graduated from the high schools ever enter the college or university, and that hardly 1 per cent. of the 14,250,000 persons engaged in manufacturing and mechanical pursuits have had or at the present time have any chance to secure adequate training in their chosen industry, is not the *necessity* of supplementing practical trade training with applied technical instruction imperative?

THE PRINTERS' PROBLEM

The Department of Industrial Relations of the U.T.A. has recently given out the following for publication:

52.15% of all print shops have.....1 to 5 employees
25.46% of all print shops have.....no employees (1 man shops)
15-18% of all print shops have.....6 to 20 employees
4.48% of all print shops have.....21 to 50 employees
1.49% of all print shops have.....51 to 100 employees
0.93% of all print shops have.....101 to 250 employees
0.21% of all print shops have.....251 to 500 employees
0.07% of all print shops have.....501 to 1000 employees
0.01% of all print shops have.....over 1000 employees

The above shows the problem confronting the Printers, members of the U.T.A., in their endeavor to provide an Apprenticeship Plan that shall meet the needs of the industry.

With this in mind the United Typothetae of America Department of Education has compiled this book in the effort to provide the basis of a Plan that shall be applicable to any shop condition in any locality.

If you want a thing to succeed, get behind it and push; don't stand in front and pull.—Robert Hoe.

Part II

ORGANIZATION FOR APPRENTICE INSTRUCTION

DIAGRAM SHOWING LOCAL ORGANIZATION

The above diagram illustrates the "set-up" or organization as outlined in this book for the large printing centers. In the smaller centers such modifications of above as may be necessary, may be made.

THE FIRST STEP

The first step in Apprentice Training is Organization. By Organization is meant the selection of the right person or persons to direct the work, the adoption of a practical plan of procedure, the selection of proper teaching material, the careful co-ordination of trade, technical, and school instruction, and the working out of a sound educational policy in all its phases.

In all localities where there is a local organization it is well to organize four committees, each for a specific purpose as indicated below. These committees, representing the employing, supervising, and producing branches of the business, view the apprenticeship question from different angles and unless these are brought into harmony the training will not be thorough and the apprentice will not be developed as he should be.

The apprentice boy should be the ward of the craft, not the possession of an employer. He should receive the help and counsel of those with whom he is later to have an intimate relationship. All should take pride in his progress and advancement, just as the entire shop takes pride in some notable production which it has done.

The four committees recommended are as follows:

COMMITTEES

A Local Typothetae Committee on Education of three to five members. These men to be employers and selected because of special fitness and inclination for this work. It should be a permanent Committee so it can continue its work from year to year, thereby benefiting from the experience of the past.

This is the main committee upon whom will devolve most of the work and responsibilities, and no one should accept appointment thereto who cannot give that constant, conscientious effort which will surely be required if its work is to be successful.

A Foreman's Advisory Committee of three to five foremen from each of the major departments—such as Compositors and Pressmen. These should be men of known stability of character, expert craftsmen, and of fair education. They should represent the various types of shops in the community such as Commercial Printers, Book Printers, etc. Where possible these men should be representatives of the local Craftsmen's Club who would be asked to officially co-operate in this manner.

A Workers' Advisory Committee of three to five workmen who possess character, craftsmanship and educational qualifications necessary to serve intelligently. This committee should be a truly representative committee, freely chosen from the shops of the community, and not representatives of any clique or controlling factor.

Both of these Advisory Committees would meet at regularly appointed or special meetings with the Typothetae Committee, for the purpose of considering and discussing the various questions that will be arising.

The Chairman of the Typothetae Committee would be the Chairman of the combined Committee.

A Vocational Committee of one member from each of the foregoing Committees, preferably the Chairman of each, who will represent the trade in its contact with the public schools—an ideal operating Committee for this purpose being the members indicated in this paragraph and the Vocational Director of the local Board of Education, or his equivalent.

DIRECTOR OF EDUCATION

Every large centre should organize a Department of Education with a Director of Education at its head.

This Director, if the size of the printing centre, or local Typothetae, is sufficient to warrant it, can assume control of all the local educational activities, including Apprenticeship and Extension Courses, and under the general supervision of the Typothetae Committee on Education, can appoint an Apprentice Deputy or Director, as provided below, who will devote his entire time to Apprentice work.

In other words there will be a local Department of Education. with a local Director of Education, this department having natural divisions of work with a special man or Deputy in charge of each division, similar to the operating plan of the United Typothetae of America Department of Education at Chicago.

APPRENTICE DIRECTOR

Where conditions do not warrant the installation of a Department of Education, in accordance with the foregoing, there should always be appointed *an Apprentice Deputy or Director,* whose duty will be to carry out the instructions of the Typothetae Committee, and to keep in intimate daily contact with the training of apprentices. In the larger cities he should be a paid agent, especially selected for his fitness. In the smaller localities he can be a public-spirited volunteer who, like a Scout Master of the Boy Scouts, will volunteer for the duty because of his special fitness and love for the work.

One of the missing links in most trade training heretofore done, collectively or municipally, has been the lack of control over the apprentice or his destiny after he leaves his instructor's hands or the school. The employer or shop foreman does not, in many cases, give to the boy that fair opportunity for rounded out development which the boy has a right to expect, and this condition

has often been a serious stumbling-block to apprentice development. In order to prevent, in so far as possible, this retarding of legitimate apprentice growth and to supply the "missing link" your Department of Education strongly recommends the appointment by each local Typothetae Committee of this so-called Apprentice Deputy or local Director.

This man will familiarize himself with the National and local courses of instruction, will keep himself advised regarding the progress of each apprentice-student, his place of employment, wages, etc., and will visit the shops where local apprentices are employed, co-operating with employer and foreman in developing the apprentice to his utmost ability.

He will also give regular instruction, as prescribed by his committee, to all apprentices in the "Apprentice Departments," as hereinafter provided.

In short, the Apprentice Director will be the Shop-man for his local committee, aiding the apprentice in his development, and keeping shop and school in close articulation, that the boy may not go backward nor be mal-educated through improper influence of other shop employees. He will report his observations and recommendations to the boy's foreman and employer, and at all times consider his position a confidential one.

This position, requiring a certain amount of time each week, can, as stated above, be considered an honorary one in many places, while in large communities the office will require a Deputy at stipulated wages.

SURVEYS

Two surveys should be made as the first step before inaugurating any apprentice instruction policy.

1. A survey of the trade in the locality to ascertain:

   The number of junior workers now engaged in the shops and for whom instruction must be provided.

   The number of new apprentices which can be taken into the trade yearly, competently trained and absorbed at the end of their instruction period, as journeymen.

2. A survey of the public school facilities for co-operative training, in accordance with the guide on following pages.

This guide is intended to be more than a mere questionnaire. It is intended to furnish a means for a complete examination and report upon a school. The questions are not intended to be answered by yes or no, but to be indications of points upon which full information is desired.

Obviously some of these questions will be needless in some cases, for example, if the work is only manual training. While only relevant information should be sought, care should be taken to make it as complete as possible.

I. CHARACTER OF THE SCHOOL OR DEPARTMENT OF PRINTING

1. Is the school supported by public funds or by private endowment?
2. If by public funds, is it supported by the City alone or do the state and national government contribute and in what proportion?
3. How much money was spent for the support of the school or department of printing in the last fiscal year?
4. What is the purpose of the instruction? Is it (a) manual training (part of general education); (b) prevocational (preceding serious vocational education); or (c) vocational (direct for the industry)?
5. Is the purpose sharply defined and consistently followed?
6. If the purpose is vocational, what is the nature of the work done? Is it (a) full time day work, (b) part time day work, or (c) evening work?
7. If it is a combination of two or more of these, what is the relative importance of each?

II. LOCATION

1. Is the school well located?
2. Is it easy of access from the homes of the pupils?
3. Is it easy of access from the shops?

III. PLANT

1. Is the plant well located in the building?
2. Describe it fully, showing whether or not it is of proper size, airy, and well lighted.
3. Describe the lighting system fully.
4. Describe the heating system and state whether proper temperature and humidity are maintained.
5. Is it kept clean and workmanlike in appearance?
6. Is it safe from fire?
7. Are waste paper and the like properly cared for?
8. Is there proper toilet and lavatory equipment?

IV. EQUIPMENT AND SUPPLIES

1. Give a full list of the equipment.
2. Is the layout of the plant good? If not, in what respect could it be improved?
3. Is the equipment new and up-to-date?
4. Are the machines provided with proper safety appliances?
5. Is the equipment in good repair and well cared for, cases clean, etc.?
6. Is the blowing out of cases hygienically done?

V. TEACHERS

1. If there is more than one teacher the information asked should be given fully with regard to each separately.
2. Name and age.
3. Subject taught.
4. Education.
5. Experience. (a) In the industry; (b) in teaching.
6. Has he high standards of excellence in printing?
7. Has he practical ideas of shop management?
8. Are his methods workmanlike?
9. Is he a good disciplinarian?
10. Is he sympathetic and helpful toward the pupils?
11. Does he keep in close touch with the local industry?
12. Are his appearance and personality good and likely to be helpful to the pupils?
13. Has he energy and initiative in directing the work of his department?
14. IS HE A GOOD CITIZEN?
15. Has the Committee any comment to make as to the man or any of his relations, either to the school, the industry, or outside interests?

VI. CURRICULUM

(*A.*) *Full time day work.*

1. How long is the course?
2. Give the curriculum in full, including shop work and classroom work, for the entire course, showing how many hours per week (actual clock time) are given to each subject in each semester or term.
3. What text-books are being used? (Give titles and authors).
4. Are the non-shop or book subjects taught by the teacher of printing?
5. If not are they given in separate sections and arranged to coordinate with the shop work or do the printing pupils go into general classes with pupils learning other trades or no trades?
6. If the classroom work is partly special and partly general, describe it fully.
7. What is the system of grading?
8. Is the grading general or are the grades for shop work and book work separated?
9. Are the school credits given for shop work equivalent to those given for classroom work?
10. Is the shop work covered by a general mark or are grades so given as to show such qualities as promptness, neatness, care of tools and materials, speed, initiative, etc., separately?

(*B.*) *What is done for part time pupils?*

1. How much time do they give by the week and by the term or semester?
2. Describe the work fully.

(*C.*) *What is done for evening pupils?*

1. How much time do they give?
2. Is there a system of unit courses? If so, what are they?
3. Describe the work fully.

VII. PRODUCT

1. What is the product of the school print shop?
2. How much work is done: (a) for the school; (b) for other schools; (c) for the school board; (d) for the city; (e) for the general public? If possible this information should be given by means of a full list of jobs done for a year preceding the date of the report. This list should be in detail, giving a full description of the job and the number of copies printed. If any books, pamphlets, or periodicals are printed, the size of page and number of pages should be given as well as the number of copies.
3. What consideration governs the choice of work done?
4. Who determines what work shall be taken in?
5. Is there any deliberate purpose to make the school print shop self-supporting or a source of direct or indirect financial gain?
6. Is the quality of the product up to first-class commercial standards for similar work?
7. How far is the product really the work of the pupils? For example: a program is printed, who chose the paper, selected the type faces, and laid out the copy?

VIII. PUPILS

1. How many pupils are there in full time day courses; in part time courses; in evening courses?
2. How many of the pupils who enter complete the course?
3. How old are the full time pupils?
4. What previous education is required of them?
5. Who decides whether or not they take the printing course?
6. Is there any tendency on the part of the school authorities or others to put into these courses pupils who are not making good in academic studies?
7. Do the boys work in printing shops during the summer vacation?
8. How many boys can the local printing industry absorb annually?

9. What arrangements are there for the passage of boys from the school to the industry?

10. With what standing are these boys received into the shop as compared with other boys?

11. Is there any plan for having the graduates accepted as regular apprentices?

12. How many of the pupils are thus appointed?

13. Is there any provision made for continuing the apprentice's instruction after he enters the shop?

14. Is there any plan for keeping a record of the graduate's progress in the industry?

IX. OTHER VOCATIONAL COURSES

1. Does the school system support other vocational courses: (a) day, (b) part time, (c) evening?

2. For what trades is instruction given?

3. Has the printers' organization ever asked the schools for help?

4. What is the attitude of the superintendent of schools towards providing adequate vocational instruction for (a) the printing trades, (b) other trades?

SURVEY FORMS

When these surveys have been made (the first on form, per illustration herewith, provided by the United Typothetae of America Department of Education, upon application to Chicago headquarters; the second in written form in accordance with the foregoing questions) and reported to the United Typothetae of America Department of Education, the Department will promptly give a written opinion upon the conditions found, with recommendations.

APPRENTICE SURVEY

Issued By
U. T. A. DEPARTMENT OF EDUCATION

This Survey Form is prepared in order that a statistical analysis of number of apprentices as compared with number of journeymen, in all departments may be made. Fill in totals only. While Feeders are Apprentice Pressmen they should be entered as Journeymen on this report. Linotype and Monotype refers to operators and not machines. Enter totals of Electrotypers and Engravers, on this report, regardless of departmental classification. Enter in blank columns, (writing in headings) such other skilled operations, requiring apprentices, which you may desire to include. Enter each apprentice only once, even though he works in different departments.

Firm Name_____ Date_____

Kind of Business	Check Your Plant	Total No. Empl'y's	Total No. Appren.	No. Comps.	No. Comp. Appren.	No. Lino. Operators	No Lino. Machinists	No. Lino. Appren.	No. Mono. Keyb'd	No. Mono. Casters	No. Mono. Appren.	No. Platen Pressmen	No. Platen Feeders	No. Platen Appren.	No. Cylinder Pressmen	No. Cylinder Feeders	No. Cylinder Appren.	No. Men Binders	No. Women Binders	No. Binder Appren.	No. Electrotypers	No. Elec. App.	No. Engravers	No. Eng. App.					No. Miscel. Empl'y's
Printing Plant																													
Pamphlet Binder																													
Hard Binder																													
Trade Composition																													
Trade Presswork																													
Engraver																													
Electrotyper																													
Miscellaneous																													
Total																													
In these lower spaces state number of Apprentices in each department, which you can take into the trade regularly each year.																													

NOTE: Be sure to fill in last spaces giving number of apprentices in each department, which you can take on regularly each year, and train. This is important. In space below, or by separate letter, give all other information you can regarding your conditions.

Remarks

Please fill out and return promptly to_____

Signed_____

Furnished in two colors of paper, each 8½x11 in. Blue for Firm survey; Pink for composite survey of Locality.

Part III

TYPES OF SCHOOLS

"Ideals are like stars. You will not succeed in touching them with your hands, but, like the seafaring man on the desert of waters, you choose them as your guides, and, following them, you reach your destiny."

NATIONAL AND STATE SUPPORT FOR VOCATIONAL EDUCATION

It will be well for local Typothetae Committees to be familiar with the provisions of the Smith-Hughes Act, and therefore the following brief outline of same is given below. Members of the Typothetae Committees should secure copies of the Act and study same carefully.

Through an Act of Congress, approved by the President, February 23, 1917 (now known as the Vocational Education Act or the Smith-Hughes Act), the United States has established the principle that the Nation as a whole has a share of the responsibility for the vocational education of persons who have entered upon or who are preparing to enter upon a trade or industrial pursuit, the work of the farm or home, and for the preparation of teachers of such classes. At the same time, the principle is established in this act that direct responsibility for carrying on the work of vocational education rests upon the States. This act does not provide for any direct organization or immediate direction of vocational education by the Federal Government or its agents, but does provide substantial financial assistance to the States for the promotion of vocational education. All forty-eight of the States have accepted the provisions of this act and set up an organization in the State for carrying on a program of vocational education.

State and local moneys in sufficient amount to match the Federal moneys are available in each State. The State board for vocational education, which administers this work in a State co-operates in turn with the local boards of education and local schools. In practically every city or village in the United States there is the possibility of organizing classes for persons desiring to enter or who have entered upon the various trades connected with the printing business. These possibilities cannot be realized, however, until the business itself is in a position to initiate programs, provide facilities for work and make adjustments inside of the business which all make for active co-operation with the schools.

In order that a State may receive Federal money for vocational education a State plan must be submitted to and approved by the Federal Government. The act contains specific provisions concerning approval of schools that are to receive Federal aid. The general provisions governing the extension of such aid are:

1. All schools or classes must be under public supervision or control.
2. The controlling purposes must be to fit for useful employment or supplement the employment in which the person is engaged.
3. All instruction must be of less than college grade.
4. All pupils must be over fourteen years of age.
5. For every dollar of Federal money expended the State or local community or both must expend an equal sum for the same purpose.

6. Federal moneys may be expended only for the salaries of teachers and for the maintenance of teacher-training, including supervision.

Even before the enactment of this legislation many printing schools were being conducted by local and State school boards—a considerable number of which were of little value to the printing business if, indeed, many of them were not a detriment to the best interests of the craft.

Since the Smith-Hughes Act came into being numbers of these printing schools have been abandoned altogether while others have been reorganized. In several instances very excellent schools have been established and are undoubtedly doing a real good.

If, through the co-operative effort of local Typothetae Committees with Federal and State agencies, public schools can be stimulated to perform that part of vocational training of which they are capable, there is no doubt but that much effective work could be done and successful classes organized and conducted.

On the other hand, it seems to be a well established principle that the public cannot develop special programs of vocational education for particular industries unless from within that industry there is an organized attempt to provide the body of information needed as a training content and to keep the members of the organization alive to the necessity for providing trained workers in and for the good of the business as a whole.

SHOP SCHOOLS

It is the judgment of the U. T. A. Department of Education that Shop Schools provide today the best solution to the problem of trade training. By Shop Schools is not meant public-controlled schools which often serve a very useful purpose and which are otherwise referred to in this book.

By Shop Schools is meant a trade education or training department as a part of the business, in which school instruction in trade technique and practice, combined with necessary elementary instruction consisting of mathematics, drawing, English, spelling, punctuation, color harmony, word study and composition, etc., is pursued, coincident with work at the trade—in other words, *trade training on the job,* a concrete example of which is seen in the efficient school at the Lakeside Press, Chicago.

The U. T. A. Department of Education bases its conclusions as to Shop Schools of this description upon the following definite reasons:

a. That trade instruction in public schools must be differentiated in our minds from the trade training which can be obtained in Shop Schools, and that this trade instruction would furnish but part of the theory and part of the technique.

b. That the rest of the theory and the rest of the technique, which is eventually to result in developing a competent craftsman,

can *only* be secured through practice on actual work under trade and commercial conditions.

c. The most effective way to give the apprentice-student these two divisions of instruction and training is to associate them as closely as the conditions of the particular kind of business will permit, so that the school instruction and the trade training proper may be practically simultaneous.

d. That it is unfair to the apprentice-student who undertakes to learn a trade to furnish him with less than full opportunity to perfect himself as a craftsman.

e. That it is unfair to our trade itself, or to the efficient craftsmen now engaged in it, to turn out half-equipped workmen who tend not only to produce a poor quality of work, but to act as improper competitors against competent workmen.

f. That the interest of our craft as a whole demands a product from trade instruction and trade training that shall be as near an all-round development of each individual in his chosen trade as is reasonably possible, to the end that those who are to be finally accepted as craftsmen in our trade *may be fully capable of performing the work as it should be done.*

The U. T. A. Department of Education recognizes fully the fact that the average print shop is small, and that most print shops cannot install and maintain an individual Shop School. But there are, nevertheless, in most large printing centers, at least one or two establishments large enough to do so.

The U. T. A. Department of Education, recognizing the economic question usually uppermost in the minds of employers, "What will it cost?" has made this feature the result of special inquiry, and has found the universal response from employers of different trades who are maintaining Shop Schools that these Shop Schools eventually become most profitable investments.

And they become profitable investments, not because they supply the employer with cheap workmen (which motive should be condemned by all good citizens), but because they materially raise the efficiency standards of the entire establishment, thereby increasing production, resulting in decreased unit costs.

All Shop Schools, whether individual or co-operative, should be subject to the local Committee, as hereinbefore provided, in order that uniformity of instruction may prevail, and that each Shop School may receive full benefit from the experiences and developments of all other Shop Schools. The equipment of Shop Schools may be based upon the outline as given for Trade Schools on pages 34 to 36.

LOCAL TYPOTHETAE SCHOOLS

Inasmuch as the size of the plants of most printers are not large enough to warrant individual Shop Schools, it is recommended that

in the large printing centers a local Typothetae School be conducted. It would be well if the support of the local Typothetae School be made mandatory upon local Typothetae membership, and not be subject to the uncertainties of private contribution.

The equipment of such schools may be based upon the outline as given for Trade Schools on pages 34 to 36.

The Typothetae School should be located as near the printing center of a given locality as possible, in order that apprentice-students may at all times be kept in close touch with actual working conditions. Part time instruction alternating the apprentice-student between an actual shop (his ultimate, agreed-upon destination) and the School, at regular intervals, would seem to be a better course than to retain the boy in the School for the full school term.

Typothetae Shop Schools should never be night schools, in the judgment of your Department, as the information gathered upon this point, based upon several years' experience, seems to conclusively demonstrate that tired young bodies and minds, the result of day work, do not absorb or respond to the lessons or tasks of night Shop Schools.

The above does not apply to elementary night schools, conducted by Public School departments, as many apprentice-students have taken up in night schools prescribed elementary courses in which they were deficient, and have reaped material benefit therefrom, nor to that type of night school as hereafter discussed.

A Typothetae Shop School is no more expensive to equip than an individual Shop School, and aside from necessary space rental costs no more to maintain. It can train a yearly class of from fifteen to twenty at small cost per student, one or more apprentice-students being selected by a local employer and sent to the Typothetae School to be trained for his shop.

These Typothetae Schools to be under the immediate supervision and control of the local Typothetae Committee, who would employ the instructor, and, through the local Director of Education or Apprentice Director, would keep in touch with the apprentice graduate after he had left the school and taken up continuous work with his employer.

CONTINUATION SCHOOLS

As stated elsewhere in this book attendance at continuation schools is compulsory in some States for certain classes of minors. These continuation schools can often be of great service to the printers of the locality by giving properly ordered instruction in the non-shop or book subjects.

It is imperative that the local Committee on Education should be fully informed regarding the continuation schools of the dis-

trict and that measures be taken to have this instruction of a quality and character that shall be in accordance with the standards set forth herein.

ENDOWED SCHOOLS

In many large cities there are privately endowed Industrial Schools in most of which a Printing School could be incorporated to the great advantage of the printers of the locality. The Wentworth Institute of Boston, Massachusetts, is a good example of such a School.

By the exercise of tact and good judgment the local Typothetae Committee can undoubtedly have such a School inaugurated and establish a close arrangement with the management of the Institution. In fact, those responsible for the successful conduct of these Industrial Schools are glad to have close contact with each industry which they endeavor to serve, and will welcome the closest kind of co-operation.

Where such a school can be established and conducted in accordance with the standards of the United Typothetae of America Department of Education, it is recommended that such a school be conducted in lieu of a local Typothetae School.

Properly established and administered, such a School will provide all the service that can be obtained from a local Typothetae School—even more because in most cases these Endowed Schools have "cultural" or "academic" departments which the apprentice-students can attend during prescribed periods of study.

The equipment of such a school can be based upon the outline as given for Trade Schools on pages 34 to 36.

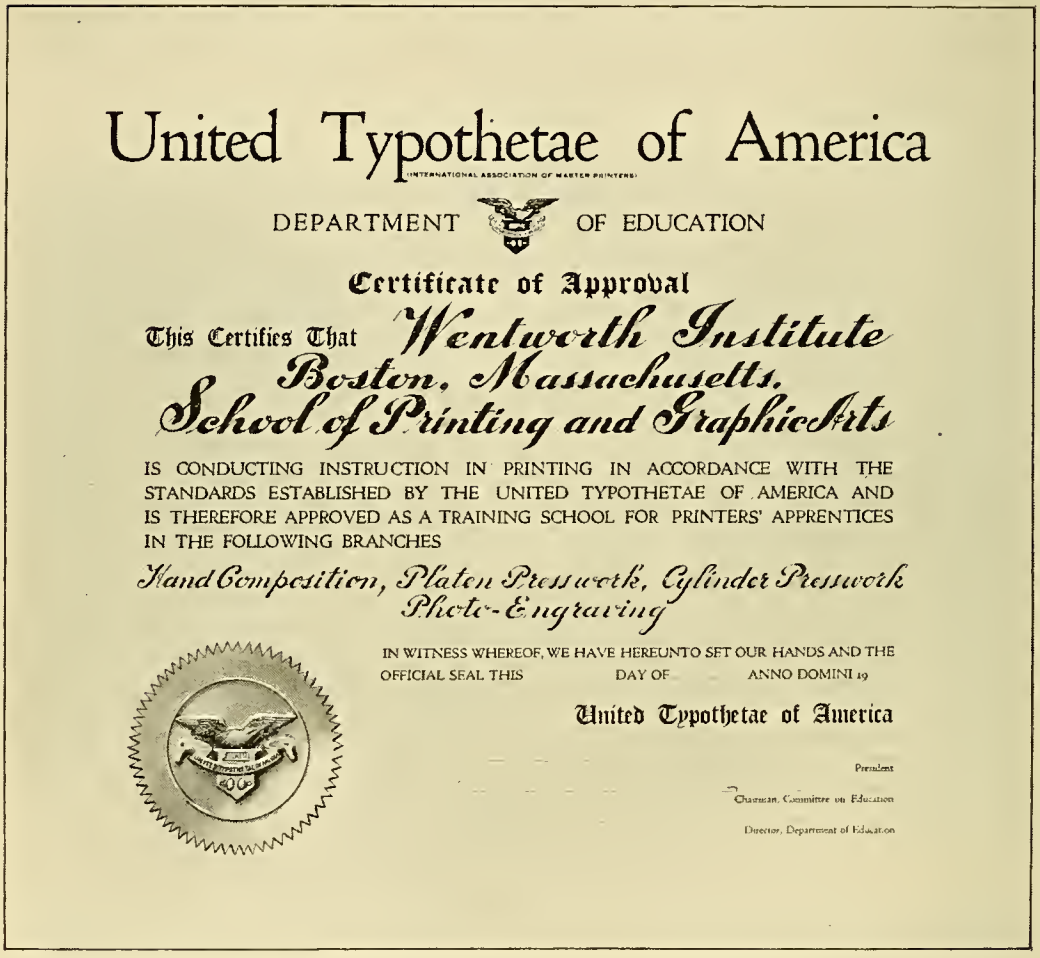
NIGHT SCHOOLS

Night classes are sometimes maintained by Endowed Schools, and by Public Schools. Generally these are patronized by junior workers already engaged in the plant, young men who have not been employed as recognized apprentices. Also attendance is given by some adult workers.

The voluntary efforts of such students are to be highly commended and fostered by the employer; and, where such night schools exist, the local Committee should be identified therewith, with as close advisory or supervisory relationship as possible.

APPRENTICE DEPARTMENTS

There are large numbers of printing plants located away from recognized "printing centers," and no system of apprentice in-



United Typothetae of America

(INTERNATIONAL ASSOCIATION OF MASTER PRINTERS)

DEPARTMENT OF EDUCATION

Certificate of Approval

This Certifies That *Wentworth Institute*
Boston, Massachusetts.
School of Printing and Graphic Arts

IS CONDUCTING INSTRUCTION IN PRINTING IN ACCORDANCE WITH THE STANDARDS ESTABLISHED BY THE UNITED TYPOTHETAE OF AMERICA AND IS THEREFORE APPROVED AS A TRAINING SCHOOL FOR PRINTERS' APPRENTICES IN THE FOLLOWING BRANCHES

Hand Composition, Platen Presswork, Cylinder Presswork
Photo-Engraving

IN WITNESS WHEREOF, WE HAVE HEREUNTO SET OUR HANDS AND THE OFFICIAL SEAL THIS DAY OF ANNO DOMINI 19

United Typothetae of America

President

Chairman, Committee on Education

Director, Department of Education

CERTIFICATE OF APPROVAL FOR SCHOOLS

Issued only to Printing Schools that meet the required standards of the United Typothetae of America Department of Education. See page 30.

struction will be adequate to our needs unless these detached shops can participate therein. Apprentice instruction should be a part of the daily business duties of every printer, and each shop should be organized to this effect. The success of the United Typothetae of America Cost System and Educational Courses is largely due to the fact that print-shops of any size, small or large, can participate in the benefits to be derived from conscientious application. It is the aim of your Department to provide for similar Shop School co-operation upon the part of all printers.

We therefore recommend that every printing office, of average size, set aside at least a single frame with cases of type and a modest equipment of other necessary material for the exclusive use of apprentices. That such type and material shall have, if possible, a reserved shop location and be known as the shop "Apprentice Department," same to be used for no other purpose than apprentice instruction.

Also that at certain hours each day the shop boys or apprentices be required to take up in this "department" the prescribed course of study which the United Typothetae of America Department of Education has prepared for this especial purpose. Furthermore, that the United Typothetae of America Typographic Library be made a part of the "Apprentice Department" equipment, and the apprentices be examined at regular periods in accordance with the Questionnaire in the back of each book.

Arrangements can usually be made with the local public school authorities for the necessary elementary instruction at the public day schools or night schools, as practiced in several localities.

Your Department recommends the establishment of these "Apprentice Departments" in all printing shops whether located in town or city. They will not only soon prove to be, in the judgment of your Department, of great value to the detached shop, but will also prove to be of inestimable value to those shops that are identified with co-operative Shop Schools as outlined above.

The local Apprentice Director can give material aid to shops maintaining these Apprentice Departments.

RESULTS TO BE OBTAINED

Thus with the establishment of sizable individual Shop Schools in all large plants, the establishment of local Typothetae Shop Schools in all fair-sized printing centers, and the establishment of modest "Apprentice Departments" in many printing shops of average size, all under the general direction of the United Typothetae of America Department of Education, regularly reporting their progress and experiences to the Department Director, and receiving in return helpful suggestions, ideas, valuable data and assistance, our entire industry will be working unitedly and intel-

ligently to educate and develop our young workers, resulting in a few years in a new "race" of highly trained printers.

REGISTRATION OF SCHOOLS

All Printing Schools, whether Shop School, Public School, local Typothetae School, Private or Endowed School, should be reported in detail to the United Typothetae of America Department of Education by the local Committee, for registration, and periodical reports made thereon.

APPROVAL OF SCHOOLS

Upon satisfactory information being presented to the U.T.A. Department of Education, and its approval by the Department, a Certificate of Approval (see illustration) will be issued to all schools that shall meet the required standards of the Department.

Application for such Certificate of Approval must be made by the school, upon form furnished by the Department, and before such Certificate can be given it must also receive the approval of the local Typothetae Committee.

The U.T.A. Department of Education aims to have Printers' Apprentices receive instruction only in approved schools and urges upon local committees the importance of having these schools meet the required standard.

Part IV

EQUIPMENT AND INSTRUCTION

"Three things are great:
Conscience, and Will, and Courage
To fulfill the duties they create."

THE EQUIPMENT OF A TRADE SCHOOL FOR APPRENTICE-PRINTERS

The apprentice in any mechanical trade should be instructed from the first in the most approved elementary processes practiced by competent journeymen, and he should be allowed to work with standard materials, tools, and accessories in common use in the practice of that trade.

There are, unfortunately, many materials and tools used in the printer's trade that are not properly standardized, yet while the desirability or efficiency of such tools, in a general way, may well be left to future consideration, in minor details there are many inconsistent, confusing variations and wasteful methods of the actual workshop against which the modern apprentice should be carefully warned. The first concern should be that the apprentice should understand and master sound rudiments of the trade, and then that his instruction should be such as to enable him gradually to develop in his work any reforms and improvements which will prove of real advantage.

It is essential that the beginner at the compositor's trade should learn to use standard cases, composing-sticks, and other tools, as well as standard types, and not to acquire his first lesson by working with makeshift "amateur" appliances and inferior material, or by inept, unworkmanlike methods. The same may be said concerning the apprentice pressman. Yet it does not necessarily follow that the latest idea in material or the last improvement in a machine offer any superior advantage over an older, generally accepted material or machine. In many cases study and practice with an "improvement" may be a serious limitation if one does not go further back to fundamental principles. Sound instruction should be stripped as much as possible of superfluities in order that the essential elements may be clearly seen and understood.

The equipment hereinafter listed is considered as meeting the above requirements and as sufficient to enable a class of fifteen pupils to accomplish the shop work called for in the accompanying curriculum. It is by no means intended that these specifications should be taken in all respects literally, as in style of type, cabinets, makes of press, or designation of type faces.

The items indicated are named as suitable in kind, proper in quality, and adequate in amount.

It must not be forgotten that overequipment is a serious fault and leads to many abuses. While the equipment indicated can hardly be reduced without serious harm, great caution should be exercised in adding to it unless to accommodate more pupils.

All peculiarities or eccentricities in equipment should be avoided.

A vocational school for apprentices is no place to try experiments or introduce innovations.

If only one kind of proof press is to be used, the Washington hand press is preferred. It is desirable that apprentices should learn the craftsmanship of their work and be able to produce good results with common means—not necessarily inferior means. Practice on a hand press enables the apprentice to cultivate skill in rudimentary printing, to exercise his own skill in producing an even impression, the right amount of impression, the right inking, etc. If he learns to do it well in this way he will have no trouble in quickly mastering the problem with a modern machine which automatically does the work with a minimum of skill and care. The ability to make a good impression on an old style hand press may well be considered the first step in good press-workmanship.

Assuming that each pupil will take proofs of his own composition and that it will often happen that more than one will need the proving facilities at the same time, a galley roller press will be desirable in addition to the hand press. This simple and commonly used apparatus is not costly and will occupy little room.

Practice in taking proofs with proof-planer and mallet should also be insisted on.

The type of platen press indicated in the list has been found excellently adapted to instruction purposes. The prevalence in local use of some other type of light and comparatively simple press might make it advisable to substitute that for the one named. If the number of pupils calls for a second press it would be well to add one of a different type and size. For instruction purposes it is well to accustom the pupil to the use of presses of different types, as the purpose is instruction and not quantity of production. The pupils will then learn the operation of common but somewhat different presses. It is hardly desirable to introduce the heavier kinds of presses unless there is some strong special reason or unless there are advanced pupils.

LIST OF EQUIPMENT

500 pounds 10-point Century Old Style, with spaces and quads.
25 pounds 6-point same.
25 pounds 8-point same.
25 pounds 12-point same.
25 pounds each 14-point, 18-point, and 24-point Century Old Style.
3 fonts each 6, 8, 10, 12, 18, 24-point Cheltenham Bold.
2 fonts each 30, 36, 48, 60, 72-point Cheltenham Bold.
3 fonts each 8, 12, 18, 24-point Century Old Style Italic.
3 fonts each of three different sized faces 6-point light face Gothic.

3 fonts each of three different sized faces 12-point light face Gothic.

3 fonts each of three different sized faces 6-point heavy face Gothic.

3 fonts each of three different sized faces 12-point heavy face Gothic.

2 fonts each 8, 10, 12, 18, 24-point text letter (Cloister Black).

2 pounds 10-point Century Old Style braces and dashes.

2 pounds 10-point Century Old Style fractions.

2 pounds 10-point Century Old Style references.

1 pound each of the above in 8 and 12-point Century Old Style.

5 pounds 10-point dot leaders.

5 pounds 10-point line leaders.

5 fonts type borders and ornaments.

10 flat top extension front type cabinets, each equipped with two pairs of case brackets and two pairs of news or book cases. (This is No. 2205 American Type Founders Company and the placing of the brackets on cabinets is similar to the Wisconsin Window Cabinet. The cases should be consecutively numbered.)

1 metal furniture case, 2 rule cases, 2 lead and slug cases.

4 triple cases, 2 space cases, 3 quad cases.

25 pounds each 8, 10, 12, 18, 24-point additional spaces and quads.

10 pounds each 30, 36, 48, 60-point additional spaces and quads.

Twenty 6x2 composing sticks.

Six 10x2 composing sticks, Star or Rouse.

Two 12x2 composing sticks, Star or Rouse.

(The six-inch sticks may be plain adjustable, similar to the Buckeye composing stick.)

Twenty-five 6x10 rigid rim steel galleys.

Six 10x6 rigid rim steel galleys.

Fifteen 5x23¾ rigid rim steel galleys.

1 case composing rules.

10 pounds 2-point labor-saving hair-line brass rule.

5 pounds 2-point labor-saving brass rule with ¾ or 1-point face on side.

100 pounds metal furniture.

100 pounds 6-point labor-saving slugs.

100 pounds 2-point labor-saving leads.

1 font wood furniture.

1 font reglet, with cabinet.

1 each mallet, planer, benzine can.

1 proof press (Washington hand press).

1 imposing table 36x60 inches with chase rack.

1 galley cabinet to hold 5x23¾ galleys.

1 galley cabinet to hold 6x10 galleys.

One 12x18 Chandler & Price (New Series) Platen Press with rollers and chases, equipped with long fountain and safety guards.
2 extra chases.
1 variable speed motor for press.
1 platen pressroom cabinet.
1 ink and roller cabinet.
2 dozen quoins, key gauges, benzine cans, ink knives.
1 wire stitcher or stapler.
2 tables for folding and bindery work.
One 30-inch hand-level paper cutter.
Printing inks and paper stock.
Oil cans, tools and accessories.

The equipment indicated above should occupy at least 1600 square feet of floor space. This includes room for the instructor's desk. There should also be a stockroom about 12x16 feet with shelving and a classroom 16x18 with individual desks.

The foregoing list includes only the mechanical equipment.

COST OF EQUIPMENT

The equipment indicated above will cost approximately $4,500.00 at prices prevailing at time of this publication (Oct., 1921.)

While this sum could doubtless be reduced by the purchase of at least a portion of second-hand material, nevertheless the purchase of such material is often ill advised. This is not meant to discourage the use or solicitation of donated material by interested printers, but merely a precaution against the purchase of material of doubtful value.

U. T. A. TYPOGRAPHIC LIBRARY

A comprehensive series of text-books for apprentices, covering printing and the allied industries, is being published by the United Typothetae of America Department of Education. A full description of these text-books will be found listed herein. Those titles that are starred are already published (October, 1921), others will be published as promptly as possible until all are finished. (Write United Typothetae of America Department of Education for prices.)

The U. T. A. Typographic Library consists of ten general divisions containing a total of sixty-five volumes, each being an authoritative text-book upon some one important subject of the printing or allied industries. The complete list of titles is as follows:

PART I

*1. Type: a Primer of Information
*2. Compositors' Tools and Materials

*3. Type Cases, Composing Room Furniture
*4. Imposing Tables and Lock-Up Appliances
*5. Proof Presses
*6. Platen Printing Presses
*7. Cylinder Printing Presses
8. Mechanical Feeders and Folders
*9. Power for Printing Machinery
*10. Paper Cutting Machines
*11. Printers' Rollers
*12. Printing Inks
*13. How Paper is Made
14. Relief Engravings
*15. Electrotyping and Stereotyping

PART II

*16. Typesetting
17. Printers' Proofs
*18. First Steps in Job Composition
19. General Job Composition
*20. Book Composition
*21. Tabular Composition
*22. Applied Arithmetic
23. Typecasting and Composing Machines

PART III

*24. Locking Forms for the Job Press
25. Preparing Forms for the Cylinder Press

PART IV

26. Making Ready on Platen Presses
27. Cylinder Presswork
*28. Pressroom Hints and Helps
*29. Reproductive Processes of the Graphic Arts

PART V

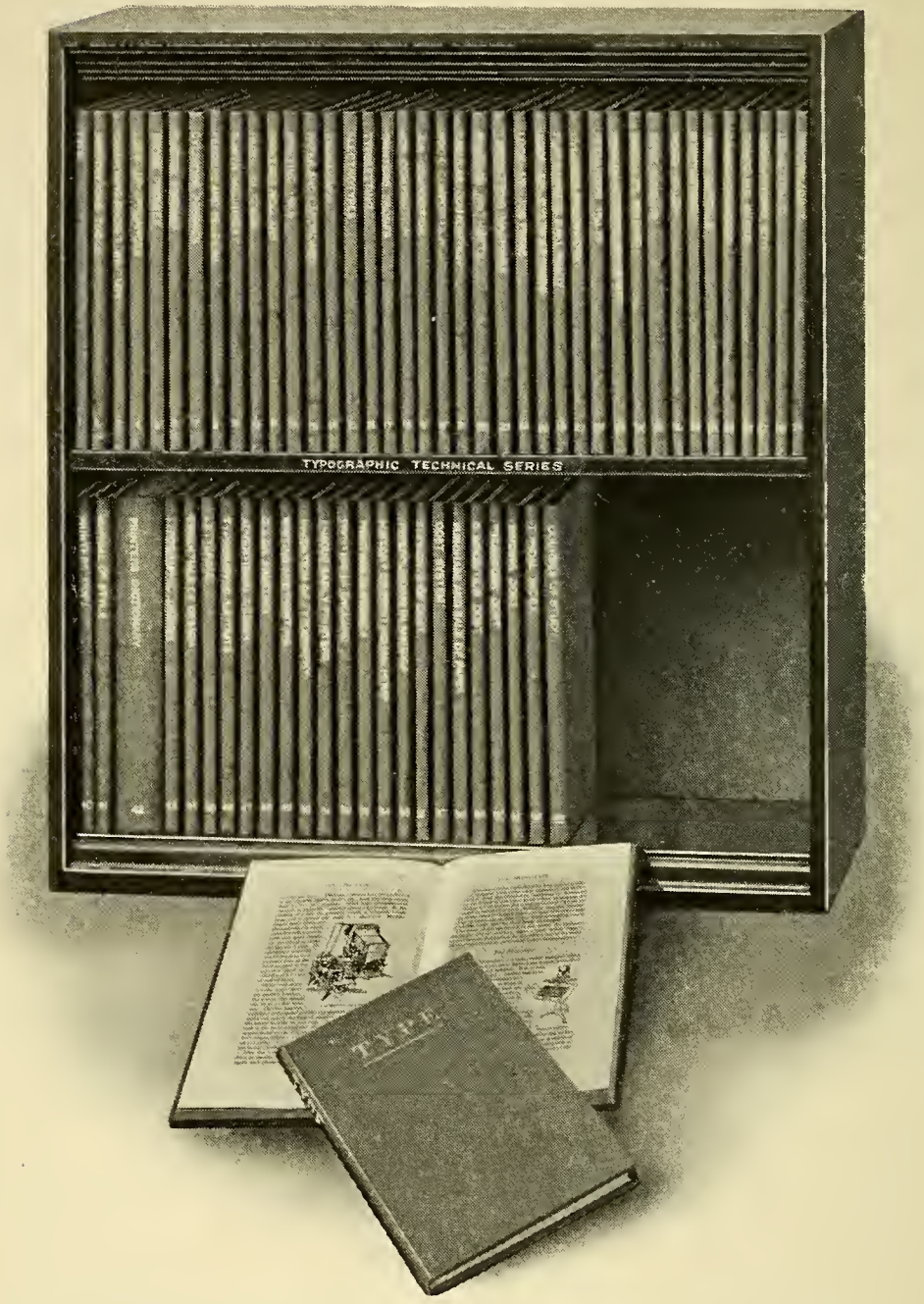
*30. Pamphlet Binding
31. Book Binding

PART VI

*32. Word Study and English Grammar
*33. Punctuation
*34. Capitals
*35. Division of Words
*36. Compound Words
*37. Abbreviations and Signs
*38. The Uses of Italic
*39. Proofreading
*40. Preparation of Printers' Copy
41. Printers' Manual of Style
42. The Printers' Dictionary

PART VII

*43. Applied Design for Printers
44. Elements of Typographic Design
45. Rudiments of Color Printing
46. Lettering in Typography
47. Typographic Design in Advertising
48. Making Dummies and Layouts



UNITED TYPOTHETAE OF AMERICA TYPOGRAPHIC LIBRARY

Illustration of U.T.A. Typographic Library showing bookcase, general comparative sizes of volumes, and space for other books.

PART VIII

*49. Books Before Typography
*50. The Invention of Typography
*51. History of Printing—Part I
*52. History of Printing—Part II
*53. Printing in England
*54. Printing in America
*55. Type and Presses in America

PART IX

56. Elements of Cost in Printing
57. Use of a Cost System
58. The Printer as a Merchant
59. Fundamental Principles of Estimating
60. Estimating and Selling
61. Accounting for Printers

PART X

62. Social and Industrial Relations
63. Health, Sanitation, and Safety
64. Topical Index
65. Courses of Study

*Stars refer to volumes published as of date, Oct. 1, 1921.

PRINTING INSTRUCTORS IN PUBLIC OR APPRENTICESHIP SCHOOLS

In order that the interests of all concerned, the trade, the schools, and the public, may be best served, two things are essential: first, that instructors in printing should be competent, and second, that their entire time in school be devoted to the teaching of printing and allied subjects. Those responsible for determining an applicant's fitness for the position may find the following questions of assistance:

1. Is he a practical printer with extensive shop experience?
2. Does he possess sufficient training as a teacher to utilize his knowledge and skill in directing the progress and development of the student?
3. Has he good acquaintance and good reputation in the trade?
4. Has he sympathy with the policy of the school, and will he enter enthusiastically into its work?
5. Is he earnest, honest, loyal, energetic, studious, patient, firm, systematic, co-operative, and progressive?
6. Has he good health, good habits and associates, good appearance, proper living environments, and a harmonious disposition?
7. Does he have any domestic troubles; is he financially embarrassed; is he living within his means?

8. Is he a man with "common sense;" one not inclined to fanaticism of any sort, or to devote undue attention to outside interests?

9. Has he a good general education, including a knowledge of the allied lines of the industry?

10. Does he realize that the characteristics we wish possessed by our trade and our citizens as a whole must permeate his methods of teaching and be a part of his personality?

11. IS HE A GOOD CITIZEN?

After securing the best possible instructor, constant effort should be made to encourage improvement. High standards must be developed and maintained. There is a too common tendency among printing instructors to become "long" on theory and "short" on shop practice. Those in charge of the work must guard against this vigorously. The right man should be paid a salary commensurate with his ability, and in any event not less than the accepted standard of wage of the locality.

TRAINING OF INSTRUCTORS

Competent instructors in printing are scarce. Many who are now teaching in the various types of schools are not good teachers. A good workman is not necessarily a good teacher. Teaching is a science; one must have special qualifications therefore.

Select your teachers with great care (see "Printing Instructors in Public Schools"). If not experienced as a teacher, but otherwise competent, send him to the United Typothetae of America School of Printing, at Indianapolis, for the special Apprentice Teacher's Course. This Course will be extremely valuable to him, and will repay the small expense and the time (ten weeks) necessary to take it.

Communicate with the United Typothetae of America Department of Education before making final selection and get the benefit of the advice that is yours for the asking.

Part V

CONTENT OF COURSES

Diligence is the Mother of Good Luck.—Benjamin Franklin.

OUTLINE OF COURSES

Following will be found detailed outline of courses, prepared by the U. T. A. Department of Education for all major departments of the Printing business.

It will be noted that the lessons are arranged in instructional groups including both shop and school subjects.

Each of the lessons of each group is in individual lesson form for student use, and in addition an instruction guide has been prepared for each unit.

This material is available only to schools approved by the U. T. A. Department of Education, to whom should be addressed all inquiries regarding same.

Group I—Elementary Composition

UNIT I—TYPE CASES
- Lesson 1. Learning the Case.
- " 2. The Composing Stick.
- " 3. Spacing and Justification.
- " 4. Emptying the Stick.
- " 5. Setting Changed Measures.

UNIT II—PULLING AND CORRECTING PROOF
- Lesson 1. Tying Up.
- " 2. Planer Proofs.
- " 3. Correcting Errors.
- " 4. Proof Presses.

UNIT III—DISTRIBUTION
- Lesson 1. Cleaning and Caring for Type.
- " 2. Distributing Type.
- " 3. Caring for Materials.

UNIT IV—STYLES OF COMPOSITION
- Lesson 1. Punctuation.
- " 2. Division of Words.
- " 3. Indention.
- " 4. Setting Poetry.
- " 5. The Point System.
- " 6. Leader and Figure Work.
- " 7. Double Justification.

Group II—Book Composition

UNIT I—BOOK FACES
- Lesson 1. Characteristics.
- " 2. The Book Font.
- " 3. Type Sizes.

UNIT II—BOOK PAGES
- Lesson 1. Proportion.
- " 2. Page Spacing and Justification
- " 3. Analysis of Copy.
- " 4. Caps, Small Caps and Italics.

UNIT III—HEADINGS, FOLIOS AND INITIALS
- Lesson 1. Initials.
- " 2. Running Heads and Folios.
- " 3. Chapter Headings.

UNIT IV—NOTES AND REFERENCES

Lesson 1. Extracts.
" 2. Foot Notes.
" 3. Marginal Notes.

UNIT V—PREFACE MATTER AND INDEX

Lesson 1. Copyright and Imprint.
" 2. Dedication.
" 3. Table of Contents.
" 4. Preface and Introduction.
" 5. Index.

UNIT VI—TITLE PAGE

Lesson 1. Sketching of Arrangement.
" 2. Selection of Type.
" 3. Borders and Ornaments.

UNIT VII—PAGING AND MAKEUP

Lesson 1. Makeup Materials.
" 2. Paging.
" 3. Makeup.
" 4. Illustrations and Tables.
" 5. Proofing and Storing.

Group III—Tabular Composition

UNIT I—CASTING UP TABLES

Lesson 1. Tables without Rules.
" 2. Tables with Rules.
" 3. Justifying a Table.
" 4. Box Headings.
" 5. Registering to Ruled Sheets.
" 6. Tariffs and Time Tables.

Group IV—Advertising Composition

UNIT I—PRINCIPLES OF DISPLAY

Lesson 1. Lines and Masses.
" 2. Varying Degrees of Emphasis.
" 3. Contrast.
" 4. Harmony.
" 5. Proportion.
" 6. Balance.
" 7. Spacing.

UNIT II—ANALYSIS OF COPY

Lesson 1. Atmosphere.
" 2. Salient Points.
" 3. Text Matter.
" 4. Subordinate Information.

UNIT III—SELECTION OF TYPE AND MATERIALS

Lesson 1. Type Families and Series.
" 2 Type Combinations.
" 3. Expressiveness of Type.
" 4. Initial Letters.
" 5. Printers' Rules.
" 6. Borders.
" 7. Ornaments.

UNIT IV—NEWSPAPER ADS
- Lesson 1. Measures and Dimensions.
- " 2. Featuring Prices.
- " 3. Methods of Composition.
- " 4. Single and Multiple Column Advertisements.
- " 5. Department Store Advertisements.

UNIT V—PERIODICAL AND MAGAZINE ADVERTISEMENTS
- Lesson 1. Possibilities and Limitations.
- " 2. Placing Illustrations.
- " 3. Harmonizing Type with Illustrations.
- " 4. Use of Borders.
- " 5. Mail Order Advertisements.

UNIT VI—LAYOUTS AND SPECIFICATIONS
- Lesson 1. Preliminary Sketches.
- " 2. Working to Layout.
- " 3. Determining Type Sizes and Measures.
- " 4. Marking Up Copy.

Group V—Job Composition

UNIT I—ELEMENTS OF JOB COMPOSITION
- Lesson 1. Type Faces and Materials.
- " 2. Spacing Between Words.
- " 3. Letter Spacing.
- " 4. Styles of Job Composition.
- " 5. Breaking Forms for Color.
- " 6. Job Distribution.

UNIT II—SMALL COMMERCIAL FORMS
- Lesson 1. Envelopes.
- " 2. Letterheads.
- " 3. Billheads and Statements.
- " 4. Business Cards.
- " 5. Receipts.
- " 6. Banking Forms.
- " 7. Blotters.
- " 8. Shipping Tags and Labels.
- " 9. Legal Forms.
- " 10. Handbills.
- " 11. Window Cards and Posters.
- " 12. Calendars.
- " 13. Holiday Printing.

UNIT III—SOCIETY FORMS
- Lesson 1. Name Cards.
- " 2. At Home Cards.
- " 3. Society Stationery.
- " 4. Announcements.
- " 5. Wedding Invitations.

UNIT IV—RELIGIOUS PRINTING
- Lesson 1. Historical Basis.
- " 2. Ecclesiastical Booklets.
- " 3. Ecclesiastical Stationery.
- " 4. Church Programs.
- " 5. Religious Yearbooks.

UNIT V—BOOKLETS AND FOLDERS
- Lesson 1. Connection with Book Printing.
- " 2. Cover Pages.
- " 3. Text Pages.
- " 4. Folios.
- " 5. Four-page Program.
- " 6. Menus.
- " 7. Special Fold and Arrangement.

UNIT VI—CATALOGS
- Lesson 1. Standard Sizes.
- " 2. Purpose and Utility.
- " 3. Title-pages.
- " 4. Introductory Matter.
- " 5. Typographical Salesmanship.
- " 6. Placing of Illustrations.
- " 7. Tabular Matter in Catalog Pages.
- " 8. Catalog Covers.
- " 9. Makeup of Pages.
- " 10. Copy Fitting.

Group VI—Stone Work

UNIT I—ELEMENTS OF LOCK-UP AND IMPOSITION
- Lesson 1. Lock-up Equipment.
- " 2. Use of Furniture.
- " 3. Quoins.
- " 4. Proofs and Corrections.

UNIT II—LOCK-UP FOR JOB PRESS
- Lesson 1. Small Forms.
- " 2. Rule Forms.
- " 3. Twist Forms.
- " 4. Registering Color Forms.

UNIT III—FOUNDRY LOCK-UP
- Lesson 1. Chases and Bearers.
- " 2. Lock-up.

UNIT IV—IMPOSITION
- Lesson 1. Four Page Forms.
- " 2. Eight Page Forms.
- " 3. Sixteen Page—Hand Fold.
- " 4. Sixteen Page—Machine Fold.
- " 5. Thirty-two Page Forms.
- " 6. Margins.
- " 7. Work and Back Forms.
- " 8. Work and Turn Forms.
- " 9. Work and Tumble Forms.
- " 10. Signatures.

Group VII—Platen Press

UNIT I—PLATEN PRESS FEEDING
- Lesson 1. Getting Acquainted with the Press.
- " 2. Oiling and Cleaning.
- " 3. Feeding Blank Stock.
- " 4. Feeding Live Jobs.
- " 5. Washing the Press.

UNIT II—PRESS PREPARATION
- Lesson 1. Preparing the Tympan.
- " 2. Inking Up.

UNIT III—MAKEREADY
- Lesson 1. Placing the Form.
- " 2. Pulling the First Impression.
- " 3. Underlaying.
- " 4. Overlaying.
- " 5. Setting Gauges and Registering.
- " 6. Press O.K.
- " 7. Type Forms.
- " 8. Wood Base Electros.
- " 9. Mixed Forms.
- " 10. Rule Forms.

UNIT IV—PRESS ROLLERS
- Lesson 1. Composition.
- " 2. Adjustment.
- " 3. Care and Seasoning.
- " 4. Ordering.

UNIT V—PRINTING INK
- Lesson 1. Qualities of Ink.
- " 2. Ink on Paper.
- " 3. Composition of Ink.

UNIT VI—PAPER
- Lesson 1. Grades of Paper.
- " 2. Standard Sizes and Substance Numbers.
- " 3. Static Electricity.

UNIT VII—PRESS ADJUSTMENTS AND MECHANISM
- Lesson 1. Platen Movement.
- " 2. Bed Movement.
- " 3. Roller Carriage.
- " 4. Trip Movement.
- " 5. Disk and Fountain.
- " 6. Gears, Cams and Side Arms.

UNIT VIII—HALF TONE MAKEREADY
- Lesson 1. Square Half Tones.
- " 2. Vignettes.
- " 3. Process Color.
- " 4. Tint Blocks.
- " 5. Ink Distribution.

UNIT IX—SPECIAL PRESS OPERATIONS
- Lesson 1. Perforating.
- " 2. Scoring.
- " 3. Die Cutting.
- " 4. Numbering.
- " 5. Embossing.
- " 6. Bronzing.

UNIT X—TYPES AND USES OF PRESSES
- Lesson 1. Clam Shell Type.
- " 2. Universal Type.

UNIT XI—AUTOMATIC FEEDERS
- Lesson 1. Gauges and Sheet Adjusters.
- " 2. Grippers and Delivery Fingers.
- " 3. Air Feed Mechanism.
- " 4. Feed and Delivery Boards.
- " 5. Minor Adjustments.
- " 6. Envelope and Card Attachments.

Group VIII—Cylinder Press

UNIT I—CYLINDER PRESS FEEDING

Lesson 1. Getting Acquainted with the Press.
" 2. Oiling and Cleaning.
" 3. Feeding Blank Stock.
" 4. Feeding Live Jobs.
" 5. Washing Up.

UNIT II—PRESS PREPARATION

Lesson 1. Preparing the Tympan.
" 2. Inking the Press.
" 3. Setting Guides.

UNIT III—MAKEREADY

Lesson 1. Placing the Form.
" 2. Underlaying.
" 3. Overlaying.
" 4. Registering and Position O.K.
" 5. Type Forms.
" 6. Wood Base Electros.
" 7. Mixed Forms.

UNIT IV—MINOR ADJUSTMENTS

Lesson 1. Feedboard and Guides.
" 2. Grippers.
" 3. Shooflies and Stripper Fingers.
" 4. Sheet Bands and Cylinder Brush.
" 5. Slitter and Tape Reels.
" 6. Fly and Sheet Delivery.
" 7. Fountain.

UNIT V—MAKEREADY OF ENGRAVINGS

Lesson 1. Line Plate and Benday.
" 2. Square Half Tone.
" 3. Color Type Forms.
" 4. Vignette.
" 5. Duotone.
" 6. Process Color.

UNIT VI—PRESS ROLLERS

Lesson 1. Composition.
" 2. Adjustment.
" 3. Care and Seasoning.
" 4. Ordering.

UNIT VII—PRINTING INK

Lesson 1. Qualities of Ink.
" 2. Ink on Paper.

UNIT VIII—PRESS ADJUSTMENTS AND MECHANISM

Lesson 1. Bed Motion.
" 2. The Cylinder.
" 3. Bed Bearers and Register Segment.
" 4. Compression Rods.
" 5. Cylinder Adjusting Screws and Cylinder Springs.
" 6. The Trip.
" 7. Gibs and Shoes.
" 8. Track and Track Ways.
" 9. Air Cushion.

UNIT IX—MECHANICAL OVERLAYS
- Lesson 1. Preparing Press to Make Overlay.
- " 2. Impression.
- " 3. Relieving High Lights.
- " 4. Final Processes.

UNIT X—PLATES AND BASES
- Lesson 1. Laying and Clamping Book Plates.
- " 2. Clamping and Registering Color Plates.
- " 3. Interlaying.
- " 4. Uses of Plates and Bases.

UNIT XI—AUTOMATIC FEEDERS
- Lesson 1. Loading the Stock.
- " 2. Feeding Mechanism.
- " 3. Calipers, Tapes and Guards.
- " 4. Trips and Sheet Guides.
- " 5. Types of Feeders.

UNIT XII—COLOR
- Lesson 1. Base Color Selection.
- " 2. Mixing and Matching.
- " 3. Color Modifications.

UNIT XIII—TYPES AND USES OF CYLINDER PRESSES
- Lesson 1. Job Cylinders.
- " 2. Two Revolution Cylinders.
- " 3. Drum Cylinders.

Group IX—Linotype

UNIT I—DETACHED KEYBOARD
- Lesson 1. Keyboard Layout.
- " 2. Finger Movement.
- " 3. Fingering Combinations.

UNIT II—STRAIGHT MATTER
- Lesson 1. Operation of Live Keyboard.
- " 2. Spacing and Justification.
- " 3. Setting Various Styles.

UNIT III—INTRICATE COMPOSITION
- Lesson 1. Twin Slug Composition.
- " 2. Broken Measure.
- " 3. Borders and Dashes.
- " 4. Advertising.
- " 5. Price List.
- " 6. Sports and Markets.
- " 7. Statistical and Classified.
- " 8. Two Line Figures.
- " 9. Panel.
- " 10. Newspaper Headings.
- " 11. Programs and Poetry.
- " 12. Folios and Book Headings.
- " 13. Directory and Mailing List.
- " 14. Signs and Symbols.

UNIT IV—MECHANISM
- Lesson 1. Keyboard Construction.
- " 2. Magazine Escapement.
- " 3. Magazine.
- " 4. Distributor.
- " 5. Distributor Box.

Lesson 6. Assembler Plate.
" 7. Assembling Elevator.
" 8. Assembler Slide.
" 9. Spaceband Box.
" 10. Dissembling.
" 11. Driving Shaft and Clutch.
" 12. Automatic Stopping Pawls.
" 13. Controlling Lever.
" 14. Automatic and Safety Pawls.
" 15. Cams.
" 16. Mold Disk.
" 17. Justification.
" 18. Vise Automatic.
" 19. First Elevator.
" 20. Line Carriage.
" 21. The Transfer.
" 22. Second Elevator.
" 23. Trimming Knives.
" 24. Metal Pot.
" 25. Gas Burner.
" 26. Temperature Governor.
" 27. Pressure Governor.

Group X—Monotype

UNIT I—CASTING MACHINE OPERATING

Lesson 1. Control and Regulation.
" 2. Care of Metal.
" 3. Matrix Symbols.
" 4. Changing Molds.
" 5. Changing Ribbons and Transferring Galleys.
" 6. Casting Body Type.
" 7. Casting Display Type and Spaces.
" 8. Casting Leads and Rules.

UNIT II—CASTING MACHINE MECHANISM

Lesson 1. Dismantling.
" 2. Assembling.

UNIT III—CASTING MACHINE ADJUSTMENTS

Lesson 1. Locking Bars.
" 2. Paper Tower.
" 3. Jaw Tong Spring Box.
" 4. Type Carrier.
" 5. Type Pusher.
" 6. Transfer Wedge Spring Box.
" 7. Bell Cranks.
" 8. Normal Wedge Locking Pin.
" 9. The Galley.
" 10. Operating Lever.
" 11. Mold Blade Operating Rod.
" 12. Carrying Frame and Draw Rods.
" 13. Low Quad.
" 14. Pump.
" 15. Type and Space Transfer Wedges.
" 16. Mold.
" 17. Trouble Finding.

UNIT IV—KEYBOARD OPERATING ON STRAIGHT MATTER

Lesson 1. Position at the Keyboard.
" 2. Letter Combinations.
" 3. Practice Words.
" 4. Alphabetic Sentences and Capitals.
" 5. Ligatures.
" 6. Use of Unit Wheel and Fixed Spaces.
" 7. Use of Justifying Scale and Justifying Keys on Reprint Copy.
" 8. Setting from Correct Typewritten Copy.
" 9. Inaccurate Copy.
" 10. Correct Copy Set to Changed Measures.
" 11. Inaccurate Manuscript Copy.
" 12. Reset Marked Proof.
" 13. Inaccurate Copy with Involved Style.
" 14. Allowance for Initials and Cuts.
" 15. Changing Ems and Units from One Set to Another.
" 16. Letter Spacing.
" 17. Date Lines and Signatures.
" 18. Hanging Indentions and Leaders.
" 19. Typewriter and Mail List Faces.
" 20. Newspaper Double Matrix Figures.

UNIT V—KEYBOARD OPERATING ON TABULAR MATTER

Lesson 1. Use of Unit Wheel for Column and Leader Work.
" 2. Directory and Tariff Work.
" 3. Tabular Work with Rules.
" 4. Catalog and Ditto Work.
" 5. Multiple Column Work.
" 6. Intricate Tabular Composition.
" 7. Box Headings.

UNIT VI—KEYBOARD MECHANISM

Lesson 1. Dismantling.
" 2. Assembling.

UNIT VII—KEYBOARD ADJUSTMENTS

Lesson 1. Justifying Space Cut-out.
" 2. Unit Wheel Mechanism.
" 3. Em Rack and Scale.
" 4. Bell.
" 5. Tension Piston Rod.
" 6. Unit Rack Stop Guide.
" 7. Paper Feed.
" 8. Justification Scale Mechanism.
" 9. Double Keyboard Switch Control.
" 10. Removing Punches.
" 11. Oiling Keyboard.
" 12. Trouble Finding.

UNIT VIII—TYPE AND RULE CASTER

Lesson 1. Control and Regulation.
" 2. Changing Molds.
" 3. Care of Metal.
" 4. Oiling the Machine.
" 5. Adjusting the Machine.
" 6. Casting Body Type and Spaces.
" 7. Casting Display Type.
" 8. Casting Leads and Rules.

UNIT IX—COMPRESSOR
Lesson 1. Oiling and Cleaning.
" 2. Governor Adjustment.
" 3. Valve Discs.
" 4. Condensing Tank.

UNIT X—NON-DISTRIBUTION SYSTEM
Lesson 1. Plan of the System.
" 2. Stocking the Cabinets.
" 3. Distribution Analysis.
" 4. Operation of the System.

UNIT XI—COPY FITTING
Lesson 1. Set-ems System of Measuring.
" 2. Changing Typewriting into Set-ems.
" 3. Fitting Copy without Cuts.
" 4. Allowance for Cuts.
" 5. Use of Copy Fitting in Estimating.

Group XI—American Social and Industrial History

UNIT I—HUMAN AND INDUSTRIAL RELATIONS
Lesson 1. Value of Education.
" 2. Importance of the Printing Industry.
" 3. The Family Groups.
" 4. Social Groups.
" 5. Human Relationships.
" 6. Use of Records.
" 7. Production and Exchange.
" 8. Industrial Organization.

UNIT II—MAKING OF THE UNITED STATES
Lesson 1. The Beginning of Modern Life.
" 2. The Development of Typography.
" 3. Discovery and Colonization.
" 4. Reasons for Settlement.
" 5. The Struggle for Independence.
" 6. The Father of His Country.
" 7. A Statesman-Printer.

UNIT III—DEVELOPMENT OF THE UNITED STATES
Lesson 1. American Ideals.
" 2. American Institutions.
" 3. Winning the Continent.
" 4. Expansion and Consolidation.
" 5. Industrial Development.
" 6. Social Development.

UNIT IV—ECONOMICS OF THE PRINTING INDUSTRY
Lesson 1. Organization.
" 2. Materials and Necessities.
" 3. Administration.
" 4. Production.
" 5. Conservation.

Group XII—English for Printers

UNIT I—FUNDAMENTALS OF ENGLISH GRAMMAR
Lesson 1. Value of English to the Printer.
" 2. The Alphabet.
" 3. Parts of Speech.
" 4. Analysis of Sentences.
" 5. Construction of Sentences.

UNIT II—THE DICTIONARY
- Lesson 1. How to Use the Dictionary.
- " 2. Story of Words.
- " 3. Spelling.
- " 4. Prefixes and Suffixes.
- " 5. Division of Words.
- " 6. Compound Words.
- " 7. Derivation of Words.

UNIT III—CAPITALS AND PRINTER'S MARKS
- Lesson 1. Punctuation.
- " 2. The Comma.
- " 3. Hyphenation.
- " 4. Capitalization.
- " 5. Abbreviations.
- " 6. Reference Marks and Symbols.
- " 7. Signs.

UNIT IV—COPY PREPARATION AND PROOFREADING
- Lesson 1. Copy Materials.
- " 2. Style.
- " 3. Editing.
- " 4. Necessity of Proofreading.
- " 5. The Marks.
- " 6. Copyholding.
- " 7. Reading Proof.

UNIT V—ENGLISH COMPOSITION AND LETTER WRITING
- Lesson 1. Clearness and Force.
- " 2. Purity and Propriety.
- " 3. Unity.
- " 4. Business Letters.
- " 5. Business Forms.

Group XIII—Arithmetic for Printers

UNIT I—NUMBERS AND UNITS
- Lesson 1. The Story of Numbers.
- " 2. How Numbers Are Expressed.
- " 3. Whole Numbers.
- " 4. Common Fractions.
- " 5. Decimal Fractions.

UNIT II—FUNDAMENTAL OPERATIONS
- Lesson 1. Addition.
- " 2. Subtraction.
- " 3. Multiplication.
- " 4. Division.
- " 5. Arithmetical Signs and Symbols.
- " 6. Averages.

UNIT III—COMMON FRACTIONS AND DECIMALS
- Lesson 1. Exact Divisors and Factors.
- " 2. Use of Fractions, Common and Decimal.
- " 3. Combinations.
- " 4. Operations.
- " 5. Interpreting Values.

UNIT IV—RATIO AND PROPORTION

Lesson 1. Use of Terms.
" 2. Levers.
" 3. Pulleys and Screws.
" 4. Cams and Eccentrics.
" 5. Verniers and Micrometers.
" 6. Transference of Power.

UNIT V—PERCENTAGE

Lesson 1. Development of Percentage.
" 2. Simple Discount.
" 3. Trade Discounts.
" 4. Interest.
" 5. Thrift.
" 6. One Hundred Percent.

UNIT VI—APPLICATIONS TO THE INDUSTRY

Lesson 1. Composing Room.
" 2. Paper and Ink.
" 3. Pressroom.
" 4. Bindery.
" 5. Photo-engraving and Electrotyping.

Group XIV—Design for Printers

UNIT I—PRINCIPLES OF ARRANGEMENT

Lesson 1. Purpose of Design.
" 2. Materials of Design.
" 3. Surface.
" 4. Harmony.
" 5. Proportion.
" 6. Balance.
" 7. Rhythm.
" 8. Symmetry.
" 9. Variety
" 10. Motion.

UNIT II—DERIVATION OF ORNAMENT

Lesson 1. Anatomy of Ornament.
" 2. Symbolism.
" 3. Esthetics.
" 4. Ornament in Nature.
" 5. Inventive Ornament.
" 6. Geometric Design.

UNIT III—TYPOGRAPHIC DESIGN

Lesson 1. Typography and the Fine Arts.
" 2. Appropriateness.
" 3. Materials of Typographic Design.
" 4. Paper in Design.
" 5. Texture in Ink.
" 6. Type Design.
" 7. Legibility.
" 8. Type Contrast.
" 9. Type Simplicity.
" 10. Decoration.
" 11. Illustration.
" 12. Binding.

UNIT IV—BOOK DESIGN

Lesson 1. The Story of the Book.
" 2. Unity.
" 3. Parts of the Book.
" 4. Planning a Book.
" 5. Size.
" 6. Material.
" 7. Type.
" 8. Decoration.
" 9. Margins.
" 10. Page Treatment.
" 11. Presentation.

UNIT V—DESIGN IN COMMERCIAL PRINTING

Lesson 1. Business Books.
" 2. Catalog Books.
" 3. Pamphlet Catalogs.
" 4. Pamphlets.
" 5. Folders.
" 6. Circulars.
" 7. Leaflets.

UNIT VI—TYPOGRAPHIC DESIGN IN ADVERTISING

Lesson 1. An Advertisement as a Unit.
" 2. Essentials of an Advertisement.
" 3. Influence of Book Design.
" 4. Departure from Book Design.
" 5. Type in Advertising.
" 6. Decoration in Advertising.
" 7. Illustration in Advertising.
" 8. Advertising Symbols.
" 9. Limitation of Media.
" 10. Publication Design.

UNIT VII—TYPE AND PERIOD STYLE

Lesson 1. Influence of Hand Lettering.
" 2. Derivation of Type.
" 3. Trade Terms for Type.
" 4. Type Widths.
" 5. Type Weights.
" 6. Type Families.
" 7. Period Style.
" 8. Mongrel Types.

UNIT VIII—COLOR IN TYPOGRAPHIC DESIGN

Lesson 1. Uses of Color.
" 2. Color Analysis.
" 3. Color Values.
" 4. Harmony of Color.
" 5. Judging Color.
" 6. Simple Color Combinations.

UNIT IX—PROCESSES OF REPRODUCTION

Lesson 1. Photographic Principles.
" 2. The Three Surfaces.
" 3. Relief Surfaces.
" 4. Plane Surfaces.
" 5. Intaglio.

Group XV—Pamphlet Binding

UNIT I—CUTTING
- Lesson 1. Receiving and Handling.
- " 2. Cutting Stock.

UNIT II—FOLDING
- Lesson 1. Hand Folding.
- " 2. Machine Folding.
- " 3. Types and Uses of Folders.

UNIT III—STITCHING AND TRIMMING
- Lesson 1. Gathering.
- " 2. Wire Stitching.
- " 3. Sewing.
- " 4. Attaching Covers.
- " 5. Trimming.
- " 6. Inspection and Packing.

UNIT IV—FINISHING OPERATIONS
- Lesson 1. Punching.
- " 2. Perforating.
- " 3. Padding.
- " 4. Numbering.
- " 5. Ruling.

UNIT V—FOLDING MACHINES
- Lesson 1. Oiling and Cleaning.
- " 2. Machine Changes.
- " 3. Guides.
- " 4. Right Angle and Oblong Folds.
- " 5. Parallel Folds.
- " 6. Scoring and Perforating.
- " 7. Slitting and Delivering.
- " 8. Special Folds.

UNIT VI—CUTTING MACHINES
- Lesson 1. Oiling and Cleaning.
- " 2. Gauges and Clamp.
- " 3. Knife Control and Adjustment.

UNIT VII—WIRE STITCHERS
- Lesson 1. Oiling and Cleaning.
- " 2. Setting.
- " 3. Stitcher Mechanism.

Group XVI—Shop Routine for Printers

UNIT I—TIME RECORDS
- Lesson 1. Time Tickets.
- " 2. Principles of Time Keeping.

UNIT II—SPECIFICATIONS AND INSTRUCTIONS
- Lesson 1. Job Tickets.
- " 2. General Orders.

UNIT III—DEPARTMENT RECORDS
- Lesson 1. Material Records.
- " 2. Requisitions.
- " 3. Production Records.
- " 4. Reports.

UNIT IV—CO-OPERATION
- Lesson 1. The Policy of the House.
- " 2. Departmental Co-operation.
- " 3. Local and National Employers' and Employees' Organizations.
- " 4. Apprentice Opportunities.

Group XVII—Power Equipment for Printers

UNIT I—MOTORS
- Lesson 1. Oiling and Cleaning.
- " 2. Brushes and Armatures.
- " 3. Fuses and Connections.
- " 4. Starters and Controllers.
- " 5. Alternating and Direct Current Motors.

UNIT II—BELTS AND PULLEYS
- Lesson 1. Belt Repairs.
- " 2. Selection and Care of Belts.
- " 3. Fixed and Variable Speed Pulleys.

Group XVIII—Health and Safety for Printers

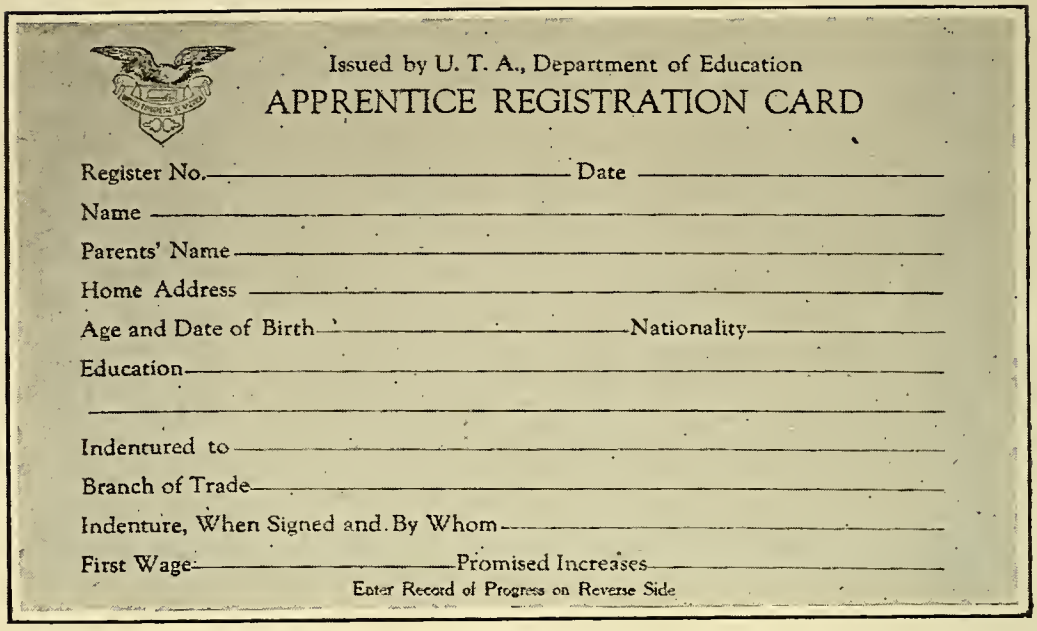
UNIT I—HEALTH FACTORS
- Lesson 1. Ventilation.
- " 2. Sanitation.
- " 3. Lighting.
- " 4. Recreation.
- " 5. Diet.
- " 6. Personal Habits.

UNIT II—ACCIDENT PREVENTION
- Lesson 1. Mechanical Safeguards.
- " 2. Fire Hazards.
- " 3. Safety Precautions.
- " 4. Personal Responsibility.
- " 5. Accident Compensation.
- " 6. First Aid.

A man's value in life is determined not so much by what he does as by how well he does it. A good worker is worth more than a poor manager.—A. A. Stewart.

Part VI

EMPLOYER AND APPRENTICE
THEIR RELATIONS TO EACH OTHER
AND TO THE INDUSTRY



Issued by U. T. A., Department of Education

APPRENTICE REGISTRATION CARD

Register No. _____ Date _____

Name _____

Parents' Name _____

Home Address _____

Age and Date of Birth _____ Nationality _____

Education _____

_____

Indentured to _____

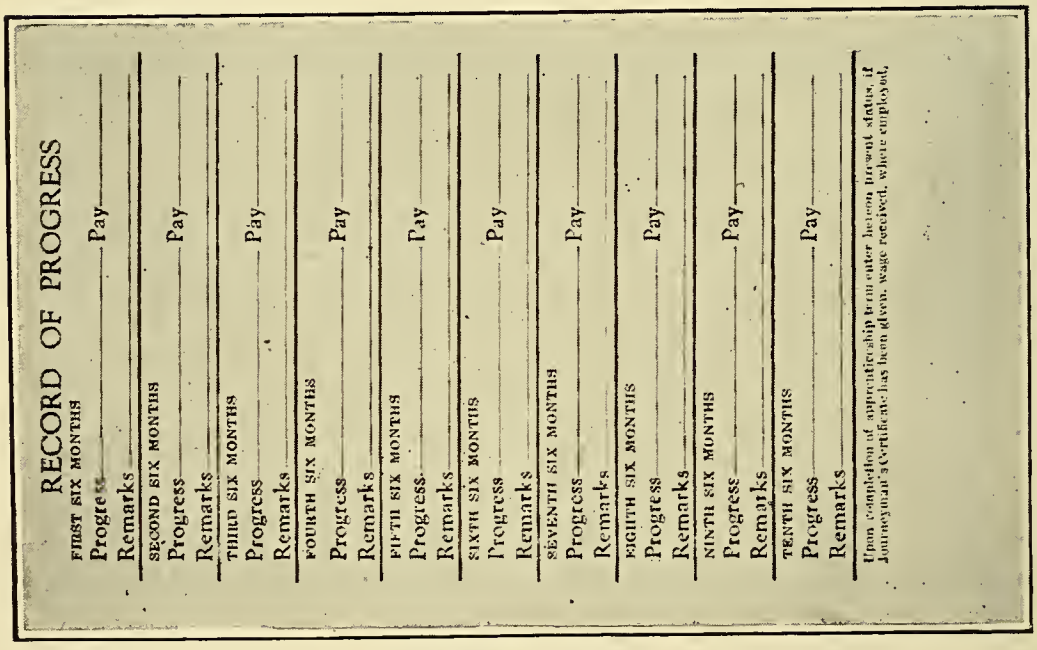
Branch of Trade _____

Indenture, When Signed and By Whom _____

First Wage _____ Promised Increases _____

Enter Record of Progress on Reverse Side

FACE SIDE



RECORD OF PROGRESS

FIRST SIX MONTHS
Progress _____ Pay _____
Remarks _____

SECOND SIX MONTHS
Progress _____ Pay _____
Remarks _____

THIRD SIX MONTHS
Progress _____ Pay _____
Remarks _____

FOURTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

FIFTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

SIXTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

SEVENTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

EIGHTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

NINTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

TENTH SIX MONTHS
Progress _____ Pay _____
Remarks _____

Upon completion of apprenticeship bring entire history up to present status, if Journeyman's Certificate has been given, wage received, where employed,

REVERSE SIDE

APPRENTICE REGISTRATION CARD

Card is size 5x3 inches so it will fit the usual card index files.

REGISTRATION OF APPRENTICES

Every apprentice should be registered, upon a standard form, per illustration herewith, provided by the United Typothetae of America Department of Education, and all such registrations should be carefully preserved by the local Committee, and kept marked up to date in accordance with the provisions of the registration card.

A duplicate of each registration card should be sent at once to the U. T. A. Department of Education, Chicago, for classification, filing and reference.

It should be definitely agreed by all employing printers that no effort shall be made to entice apprentices from each other's shops —nor should any changes of place of employment be permitted by the Committee except upon unusual circumstances that shall be wholly satisfactory to the Committee.

INDENTURE

Every apprentice should be indentured, after a probationary period of not less than three months, the probationary period, in case of satisfactory progress, being a part of the indentured time. The United Typothetae of America Department of Education will provide standard forms for this purpose upon application.

An indenture guarantees to the employer:

Continuous service of the boy during a definite time.

A better grade of boy. An employer will not enter into a contract covering a period of years with a boy whom he does not select with care.

More faithful service. By such an agreement the boy realizes that his interests are bound up with his employer's and that his advancement depends upon how he improves his opportunity.

An indenture guarantees to the boy:

An opportunity to learn his trade as a whole.

A fixed wage and guaranteed increases.

Personal interest of the employer.

An apprentice indenture thus guarantees to both parties faithful performance of mutual service, and by "guarantees" is meant, of course, reasonable certainty of fulfillment of a solemn, moral obligation.

Realizing that there should be a standardized agreement that could be adapted in whole or in part to all localities the United Typothetae of America Department of Education undertook to compile one. As there are various State statutes prohibiting what in other States would be a perfectly legal indenture, the United Typothetae of America Department of Education aimed to formulate an indenture that could be used universally if desired. See illustration herewith.

The Official Apprentice Agreement of the United Typothetae of America

Compiled by U. T. A. Committee on Education. Officially adopted 1916

Agreement of Apprenticeship

This Agreement, made and entered into this *first* day of *May, 1916,* by and between *George Jones,* guardian of *William Jones,* a minor *16* years of age on *March 12, 1916,* and the said *William Jones,* whose consent to the making of this Indenture is expressed and testified to by his becoming a party hereto and signing the same, parties of the first part, and *The Henry Smith Co.,* party of the second part.

Witnesseth, that said *The Henry Smith Co.* hereby agrees to employ said *William Jones* to complete his apprenticeship at the trade of *a compositor* for the term of five (5) years from the first day of *May, 1916.* It is understood that the work of said *William Jones* shall be under the direction of the Employer and subject to the rules and regulations of the Employer, and it is further understood that the hours of labor of said *William Jones* for which he shall receive pay as hereinafter provided shall be the working hours of the shop.

And the said *The Henry Smith Co.* further agrees that in addition to shop trade training and practice, consisting of *composition, distribution, make-up, imposition, lock-up, and some presswork,* it will furnish applied technical instruction to said *William Jones,*

(a) through the authorized text-books of the United Typothetae and Franklin Clubs of America, or
(b) through the correspondence courses offered by the United Typothetae and Franklin Clubs of America, or
(c) through a school of printing approved by said *The Henry Smith Co.,* or
(d) through continuation work for printers' apprentices in schools approved by said *The Henry Smith Co.,* or
(e) by some combination of these methods.

And the said *William Jones* agrees faithfully to serve and perform all the duties of an apprentice to the said *The Henry Smith Co.* and that he will not absent himself from his place without previous permission unless compelled by sickness or unavoidable accident.

That he will be prompt and regular at his work and will strive to perform, to the best of his ability, the work required of him. That he will neither waste the goods, nor needlessly injure or destroy any machinery, tools, or other property that may be put in his hands or under his control. That he will use his best efforts to complete such work as may be given to him to the satisfaction of said Employer.

That he will faithfully study the text-books or other materials and courses of study offered to him and will learn therefrom to the best of his ability, and will do all in his power to prepare himself for examination on such work from time to time, the satisfactory passing of such examination being understood to be one of the conditions of his advancement.

If said apprentice shall fail to perform the work of said Employer in a satisfactory manner or shall prove idle or unteachable or disobedient, or shall violate this agreement, the said *The Henry Smith Co.* if they choose, may be released from all obligations under this contract.

In consideration whereof, the said *The Henry Smith Co.* agree to teach or cause to be taught, said *William Jones,* the trade of *a compositor,* as hereinbefore stated, as fully and completely as the same may be in the power of the respective parties to teach and receive, and to pay, or cause to be paid, by the said *The Henry Smith Co.* to the said *William Jones,* for his service as an apprentice, as aforesaid, wages at the rate of

_____ cents per hour for the first six months	_____ cents per hour for the sixth six months
_____ cents per hour for the second six months	_____ cents per hour for the seventh six months
_____ cents per hour for the third six months	_____ cents per hour for the eighth six months
_____ cents per hour for the fourth six months	_____ cents per hour for the ninth six months
_____ cents per hour for the fifth six months	_____ cents per hour for the tenth six months

provided that at the end of each six-month period the said apprentice shall have proved himself entitled to a satisfactory endorsement from the foreman, superintendent, or other person under whom he has been at work or at study, on the subjects enumerated on the accompanying "Record of Progress." It is expressly provided that payment shall not be made for any time the said apprentice may be absent from his work for any cause.

In case said *The Henry Smith Co.* by reason of dullness of trade, or otherwise, fails to give the apprentice work in each of four successive weeks, amounting to at least 75 per cent of his full time then the apprentice shall have the option either to cancel this agreement or accept work furnished at proportionate wages for the length of time put in; provided, however, that the apprentice cancels this contract during the said term of dullness of trade and not after continuous employment is again furnished him.

In case of destruction or injury to plant or machinery by fire, explosion, necessity for repairs, disturbance of business by strike or other cause or calamity beyond his control, the Employer shall have the right to shut down his plant in whole or in part until the cause of such stoppage shall, with proper diligence and dispatch, be overcome and during such time he will not be liable for wages or damages.

And if said *William Jones* shall remain in the service of said *The Henry Smith Co.* for the full period of his apprenticeship, including whatever period is required to make up for lost time, and shall comply with the terms of this agreement, the said *The Henry Smith Co.* will present to said *William Jones* at the termination of his apprenticeship a bonus of *fifty* dollars *($50)* and a Certificate of Apprenticeship signed by an officer of the company.

In testimony whereof, the said parties have hereunto set their hands to duplicate copies hereof the day and date above written.

_____ *Company.*

Per _____

_____ *Guardian.*

_____ *Apprentice.*

APPRENTICE INDENTURE

Small reproduction of model Apprentice Indenture, with provision for instruction in shop and class work; also providing for regular wage increases, on the basis of cents per hour. See opposite.

RECORD OF PROGRESS

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

THIS IS TO CERTIFY that the apprentice herein named has fulfilled the conditions of his employment for the past six months and is entitled to the stipulated increase in wages.

Signed, _____

Date _____ 19 *Foreman.*

Punctuality . . . . .
Industry . . . . . .
Intelligence in work . . .
Efforts at improvement . .
Studies . . . . . .
General conduct . . . .

INDENTURE RECORD OF PROGRESS

This Record of Progress is printed on page three of U.T.A. Official Indenture shown on opposite page. See remarks on "Apprentice Pay," page 65. Actual size of Indenture 8½ x 14 inches.

Inasmuch as an apprentice indenture is simply an agreement between parties to perform certain acts which are of mutual advantage, the United Typothetae of America Department of Education came to the conclusion that an indenture or agreement, taking the form of a moral obligation only, without the customary bond given for fulfillment, would probably be permissible in all localities, and of great moral value.

LENGTH OF APPRENTICESHIP

While it is possible to take adult learners, and by an intensive course of training teach them the routine operations of a given process, nevertheless such training is not education.

The printing business is in great need of *mentally* trained workmen, as against mere *hand* trained, and this mental training requires time.

After considerable research and comparisons it has been determined that for a standardized United Typothetae of America apprentice training system compositor apprentices should be indentured for five years, and pressmen for five years. Every pressman should be a competent feeder.

In late years it has been the custom in many places, to recognize the feeder as a skilled operator and to pay him accordingly. This is a mistake as the operation of feeding is merely one of the steps in the development of a pressman.

APPRENTICE AGE

The program of apprentice education as prepared by the U. T. A. Department of Education is based upon the five-year period between ages sixteen to twenty-one. Age sixteen is the youngest age at which indenture, or employment about machinery, is permitted in many States.

Age sixteen is also the age which those most experienced in industrial education consider most suitable for beginning serious vocational training. This would bring the apprentice to the grade of journeyman at legal majority.

PRE-APPRENTICESHIP

It is recognized that between ages fourteen to sixteen a great many boys leave school and enter industry. It is also recognized that in a considerable and increasing number of States continuation school work is required up to at least age sixteen. This two-year period may be profitably utilized, providing the boy has the required educational preparation, for pre-vocational courses which if wisely directed will lead directly to apprenticeship training.

A reference to pages 87 to 90 will suggest such a pre-appren-

ticeship course and more detailed information may be obtained upon application to the U. T. A. Department of Education.

It should be understood that this pre-apprenticeship work cannot be used to shorten the prescribed term of apprenticeship. When a well organized pre-apprenticeship course has been employed (as at the Lakeside Press School, Chicago, for instance) it has been found that it results in making the apprenticeship term much more valuable to both apprentice and employer.

APPRENTICE PAY

The question of apprentice wage is an important one. Investigations have shown a wide variation in the amounts paid to apprentices, not only during the first year, but for the succeeding apprentice years; also that these variations were as great *in* a given industry as among industries in general, and, what is even more interesting, the wage differences were as great *in the same locality* in a given industry as they were throughout the country.

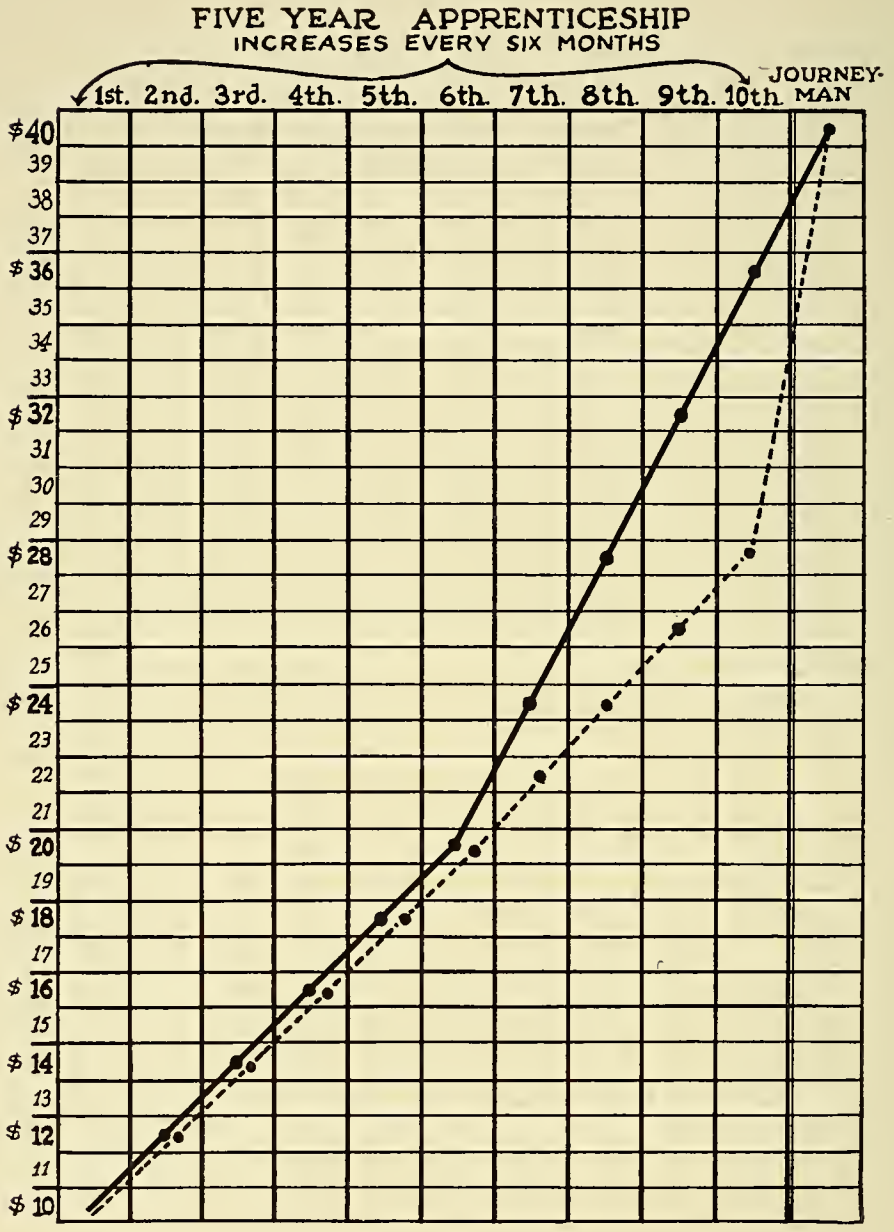
Out of a total of 451 shops in the printing trade that made report upon the wages paid to apprentices before the Great War, the following table of first year payments will show the extent of this variation:

3	shops	paid	$1.00	101	shops	paid	$5.00
2	"	"	1.50	1	"	"	5.50
10	"	"	2.00	66	"	"	6.00
9	"	"	2.50	10	"	"	7.00
76	"	"	3.00	5	"	"	8.00
40	"	"	3.50	8	"	"	9.00
98	"	"	4.00	1	"	"	9.50
21	"	"	4.50				
				451	" averaged $4.80 per week		

The above is not given as a guide of what to pay but to emphasize that there should be a uniform local wage for the apprentices of each department. These wages should be specified in the Indenture, either in dollars per week or cents per hour, and increases made each six months. The Indenture should also provide for a Record of Progress (see illustration page 63) so that the progress of the apprentice may be certified each six months upon the following points:

Punctuality
Industry
Intelligence in work
Efforts at improvement
Studies
General conduct

It is recommended that the first six months' wage be approximately one-fourth the journeyman's wage for the particular classification. Increases should be approximately two dollars per



COMPARATIVE APPRENTICE PAY INCREASE

The above diagram, based upon a supposed journeyman's wage of $40.00 per week, shows the two methods of apprentice wage increase as described on page 67.

week each six months, until the last two years when the increase should be four dollars each six months.

It will be noted that this recommended method of pay increase is graduated up in accordance with the supposed progress of the apprentice. Another method is sometimes used whereby the increases are maintained at smaller amounts until the last one and making the final increase at the end of the apprenticeship term correspondingly larger. Both methods are shown by diagram herewith.

At the end of the apprenticeship term the apprentice, if now qualified as a journeyman, in accordance with provisions elsewhere set forth (see pages 75 to 79), should be paid at least the prevailing journeyman's wage.

PIECE-WORK

There should be no piece-work rate of pay to apprentices. True apprenticeship is based upon instruction *first,* then production.

Production will follow *if* instruction has been given, but the employer must recognize the fact, as previously stated, that the apprentice cannot be expected to earn his wage and his instruction expense until he has been developed for a certain period, varying with the individual boy.

Piece-work payment to apprentices, as generally practiced, has two unfortunate tendencies: it specializes the boy, as neither boy nor employer is anxious to generalize the boy's work when he has developed special proficiency in a given operation, and it retards technical or classroom instruction, as neither boy nor employer is desirous to interrupt productive labor. It may have the advantage of impressing on the boy the true value of his labor, but this can be done in other ways.

CASH BONUS

The giving of a bonus to the apprentice upon successful completion of the apprenticeship term dates back to the old apprentice laws, in vogue not only in Western Europe, but also in many of our States. It was specified in statutes just what the bonus should be.

The following brief abstracts may be interesting:

"Fifty dollars in gold and two new suits of clothes to be worth in the aggregate at least $50.00."

"A new Bible, and two new suits of clothes to be worth respectively $15.00 and $25.00."

"A small allowance, the amount to be left to the master's generosity . . . not less than $100.00."

This ancient custom has been applied in a modern way by many employers and with hardly an exception they agree that it is a beneficial thing to do.

To earn the bonus the apprentice realizes that he must have a high rating in attendance, morality, shop practice, and classroom work. It is a prize to work for, a preventive of restlessness. It is recommended that the amount of the bonus be at the rate of $25.00 for each year, payable at the end of the complete apprenticeship term.

It should be borne in mind, however, that a bonus should not, in the judgment of the United Typothetae of America Department of Education, be understood as a part of wages to be paid. It should be a voluntary reward for special efficiency attainment, in order that the apprentice, who is working under agreement upon a uniform wage scale with other boys, may have an incentive to develop his individual capabilities.

CLASSROOM WORK ON EMPLOYER'S TIME

No employer should begrudge the time spent by his apprentices in classroom work, whether this time be spent in his own classroom or in the classroom of continuation schools.

In some States and in places abroad attendance at continuation schools is compulsory of certain classes of minors and the employer is obliged to grant the necessary time for this study. But whether compulsory or not, employers should recognize the fact that classroom work is an important phase of apprentice instruction, and not only insist upon it, but also continue regular pay during specified classroom hours.

It is essential in a proper system of apprentice training that adequate instruction be given to the apprentice along every line, *cultural, technical,* and *practical,* and as the cultural and technical are only parts of the required instruction, and as all the instruction given is for the purpose of developing the apprentice into an economical producer,—a profit maker for the employer as well as a good wage earner,—the paid-for time spent in classroom work which awakens and develops the intelligence and thereby creates a much higher degree of operative or manipulative skill, eventually becomes a profitable investment.

The employer, in assuming the responsibility for the training of an apprentice, naturally assumes the necessary expense of instruction. This instruction expense is just as real while the boy works in the shop as a partial or non-producer as during the time when he is in school. Therefore as the employer is paying this expense in any event he should not object to the time spent in the classroom.

NO FINANCIAL OBLIGATION OF APPRENTICE

It has been said by an English writer upon "English Apprenticeship" that in all probability the Elizabethan system of apprentice-

ship was the most efficient and the cheapest system of training that was ever available for the masses of the English nation. The nation neither paid for classrooms nor for teachers and inspectors, since the guildsmen served as inspectors, and master and boy entered into an agreement for their mutual advantage, which required no payment on either side. For although the apprentice received not only instruction, but board and lodging, there seems to have been no idea, when first the system of apprenticeship was developed, that the training and education which it provided should be paid for in money. It was upon the services of the apprentice, especially at the end of his term, that the master had to count for a return of his trouble and the lad's maintenance.

This was in early times; later on a change set in, and one of the complaints made against apprenticeship by eighteenth century writers was the heaviness of premiums charged by the masters upon taking apprentices. The payment of premiums even became a governmental source of revenue as a stamp tax of sixpence in the pound was imposed upon sums of fifty pounds or under, and one shilling upon sums of over fifty pounds affecting the engagement of clerks, apprentices, or servants placed with any master or mistress to learn a trade. The amount agreed upon had to be named in the indenture, and, as early apprentice history shows, if the master failed in his obligation to instruct, the court, upon presentation of satisfactory evidence, required the restoration of all or a part of the premium.

This old-world custom of the payment of a premium by the apprentice to the master or employer was transplanted to this country; and, although not practiced to the extent that it was abroad, was, nevertheless, a recognized custom for many years—in fact, is even today practiced by not a few employers who exact a premium from the apprentice under one of three general plans, namely,

(a) by cash bonus;
(b) by deferred wage payment, forfeited for reason;
(c) by tuition fee

Regardless of the reasons which might properly have been set up for such charges in the past, no reason, aside from long-time custom, can be given for such charges today. A cash bonus, or lump sum payment, for the privilege of learning a trade, or the assessment of a tuition fee has no place in a modern apprenticeship system. Private trade schools, conducted for profit, or endowed industrial schools, may properly charge a fee for their instruction.

In reference to a deferred wage payment, this also should not be countenanced by employers. It has been the custom, and it still prevails in many places, of holding back a certain portion of

the apprentice's rightful wage until he has successfully completed his apprenticeship and then presenting it to him in the form of a bonus. While the United Typothetae of America Department of Education recommends the payment of a bonus under proper conditions, it does not believe it to be permissible in these modern times that any part of an apprentice's rightful wage should be held back as a coverage for lost or damaged tools, or other possible wastage; nor as a possible penalty for slackness or slothfulness; nor as a means of preventing the apprentice leaving before the expiration of his full time; nor as an installment deposit to assure faithful performance and good conduct; nor for any other cause.

If the apprentice fails to keep his part of the contract, either through carelessness, inherent ignorance, or willfulness, the employer has but to dismiss him, thereby applying a condition of the indenture.

PAYMENT FOR PART-TIME INSTRUCTION

In some cities private or endowed schools of printing are being conducted, some of them doing most excellent work. In such places employers have sent their apprentices to these schools for continuation or part-time instruction, under an agreement with the local Board of Education where such an agreement, or permission, was necessary.

In such cases the private or endowed schools charge a small fee for their services. This fee should be paid by the employer—in addition to continuing the full-time pay of the student while at the school—then he can insist on a high percentage of results.

RECREATIONAL AND ATHLETIC ACTIVITIES

There are two phases to apprentice instruction—that which the apprentice receives during working and studying hours, and that which he receives when his day's work is done and his time is his own.

Old-time apprentice laws made the master responsible for the apprentices, not only for the mastery of the art or trade, but also for his moral and physical well-being, and modern employers, too, are fast recognizing the fact that "it pays" to throw around their workers, and particularly their junior workers, a wholesome influence that acts as a guide for conduct outside the factory as well as inside.

The boy is a human complexity—he must have social contact, recreation, and diversion. If these be not supplied by his guardian he will seek for them himself, and oftentimes in places that exert everything but the proper influence.

It therefore behooves all employers of apprentices to take note of the social and other activities of their charges and whenever

possible to supply these under proper supervision. Factory clubhouses where a high moral tone prevails, where rest and recreation can be indulged in, where good books can be obtained, where the boys can develop, through proper intercourse, a realization of their opportunities and the manly part they should play in life, will be a stimulus towards making them good citizens.

It is generally possible through co-operation with the public libraries to secure a selection of good books to be obtained by the boys at the clubhouse and to get guidance for their reading which will help the mental awakening so much desired.

Where factory clubhouses are unobtainable, arrangements can undoubtedly be made with some good, wholesome, local institution, such as a Y.M.C.A., or similar organization, for recreational opportunities. It is also well to encourage reasonable athletic activities, for boys can learn many lessons in play that will be useful to them through life. Of these, discipline and team work are examples.

By exercising a kindly and genuine interest in his apprentices the employer can do much to shape their future lives and thereby create a bond between himself and his apprentice boys that will endure.

APPRENTICE CLUBS

Where conditions warrant, it is generally a good idea to organize a Printers' Apprentice Club, or Society of Printers' Apprentices, or an Apprentice Alumni, in the community.

The Club should be for the sole purposes of further developing the trade and social education of the apprentices. The wearing of the Apprentice Insignia, or badge (see page 74), will assist in maintaining a degree of pride in the boy's progress.

Such Clubs can meet at the local Typothetae rooms where talks can be given, experiences exchanged, and the employers of the community can drop in from time to time and assist in fostering a fraternal spirit.

OPPORTUNITIES FOR APPRENTICES

If the whole aim of apprentice instruction was simply to train boys for a limited number of years, and to develop their mental and physical forces so that they could pass from the classification of "Apprentice" to that of "Journeyman," if that was all, apprenticeship would be of but limited value.

But something more must be provided and that is opportunities for apprentice-graduates *to go on progressing*.

The printing business is rapidly changing; it is fast losing its simple forms and taking on the complex. Intricate, expensive machinery is taking the place of older types, and quality of pro-

duction is forcing out "just as good." It is therefore of vital importance to the employer himself, if not the boy, that the employer give his graduate-apprentices every possible opportunity for advancement.

And why not? Here are young men who owe their trade mastery to their employer. He has financed them through the non-productive periods, has personally supervised their studies and progress, has in fact given them a printing education which is their capital, and their protection against future poverty and want. Will they appreciate it or not?

The answer to this question lies with the employer. If he has "played fair" with his apprentices (and boys have an inherent instinct for what they term "fair play") he need have but little worry about their leaving him, as statistics show that by far the largest percentage of graduate-apprentices stay on the job whenever they can.

And think of a printing shop that is manned with trained workers—workers the employer has trained, who know him, respect him, love and revere him for his interest in them! Can a more loyal, more highly productive, better-paying "force" be found than these young men will constitute?

Open the way for advancement in your own plant for your graduate-apprentices; if not, some more worthy employer will get them and make them his own.

TUITION FEES FOR TYPOTHETAE OR ENDOWED SCHOOLS

Where instruction in local Typothetae of Endowed Schools is practically continuous in the School, and no saleable product results from the students' work, it is permissible to charge a reasonable instruction fee. See page 70.

Most endowed industrial schools charge a small term fee, the student being considered on the basis of an attendant at a School of Technology or College. In such cases the fees should not be prohibitory and before any decision is made on this subject local Committees are requested to report all the facts to the United Typothetae of America Department of Education, who will advise on the matter.

Of course, no fees whatever should be charged to apprentice-students in a Shop School.

CREDIT FOR TIME SPENT IN SCHOOL

Where students spend one or more years in a local Typothetae or Endowed School, for which they have paid a fee in addition to the devotion of their time for instruction, a reasonable allowance in time should be made in the Indenture.

For instance, if a student spent one year or two in a recognized Endowed School of Printing, learning the trade of Compositor, he would be entitled to a reduction in the five years Indentured time after he takes his work up in the shop.

It is difficult to set up any rule on this point, as credit (including wage) must be based upon the progress of the student. It will vary from full time credit (and in special cases to *more* than full time credit) to some percentage thereof depending upon the student. Each student should be individually examined upon the completion of his school work and credit given in accordance with his abilities.

Boys attending such Schools, under an arrangement with an employer to go to his shop upon the completion of his school term, can be indentured before going to the shop, provided the conditions are fully stated in the Indenture.

INCOME TAX DEDUCTION

The secretary of the Baltimore Typothetae calls attention to the following: Any expenses incurred by the printer in educating his employees is deductible from his income tax. Your attention is called to two recent rulings by the Bureau of Internal Revenue at Washington as follows: "Where a corporation encourages or requires its employees to attend part time schools it may deduct as a business expense reasonable amounts paid as compensation to such employees during their absence from employment while attending such schools." . . . "The subscription price paid by a tax payer for a technical magazine or trade journal to be used by him as a means of furthering his business interest is deductible as a business expense."

SCHOLARSHIPS

Where fees are in vogue in local private or Endowed Schools, the Typothetae, or individual employer, can establish free scholarships (payment of the school fee) for worthy young men. This sometimes enables the employer to obtain especially desirable boys who would otherwise be prevented from attending the School, owing to inability to pay the required tuition. As an illustration a number of Boston employing Printers have each established a Scholarship in their firm names at Wentworth Institute, known as

The University Press Scholarship
The Geo. H. Ellis Co. Scholarship
The Youths' Companion Scholarship

These scholarships are renewed each year, the local committee, or the employer, selecting the boys.

APPRENTICESHIP INSIGNIA

Metal pins to be given to, and worn by, the apprentice.
To be issued to him, one each six months, in accordance with his progress.

1. 1st six months
2. 2nd six months
3. 3rd six months
4. 4th six months
5. 5th six months
6. 6th six months
7. 7th six months
8. 8th six months
9. 9th six months
10. 10th six months

Star (*) when he is qualified to be rated as a journeyman. See pages 75 and 77.

TEACHING MATERIAL

As stated in the Foreword a series of instructional units, including students' lesson sheets and instructors' guides, has been prepared by the U.T.A. Department of Education, which will be sent only upon special application therefor, with reasons for request.

These lessons and guides give in detail the necessary teaching material for the use of the Printing instructor. The lessons have been prepared in individual form for use in shop and classroom. See page 43.

Naturally the preparation of this material has entailed considerable cost, therefore it cannot be given general distribution but can only be sent in accordance with the rules of the U.T.A. Department of Education.

APPRENTICESHIP INSIGNIA

As stated under the heading, "Apprentice Pay," the Indenture should provide for a Record of Progress that the apprentice may be regularly certified as to progress.

In addition to this, certain insignia, per illustration, should be given at the end of each period of instruction to the apprentice who has satisfactorily met the requirements of the instruction indicated in the Unit Course outline detailed elsewhere in this book.

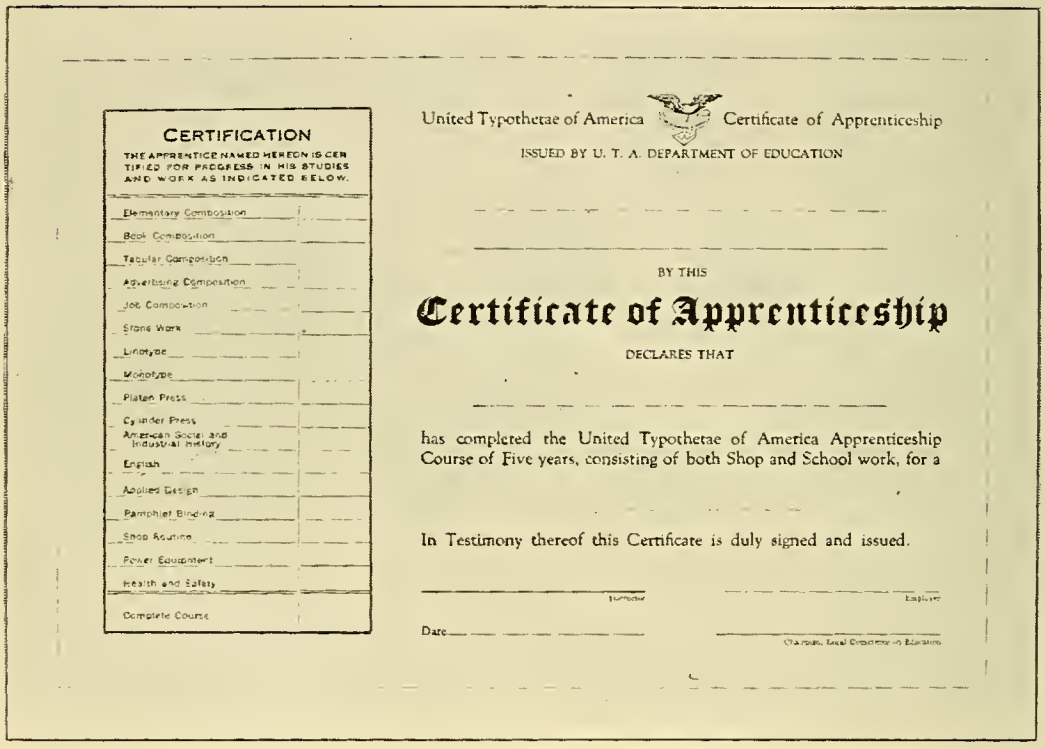
This insignia, worn by the apprentice, will be a source of pride to him, as it will be official certification of his progress exactly as the Boy Scouts receive the right to wear certain insignia upon their successfully passing the prescribed successive steps.

This insignia may be obtained upon application of the U.T.A. Department of Education.

CERTIFICATE OF APPRENTICESHIP

In addition to the adoption of a standard apprentice agreement the United Typothetae of America Department of Education has also prepared a "Certificate of Apprenticeship." (See illustration herewith.) It was felt that such a certificate would confer a dignity upon the apprenticeship system of training as a whole, while at the same time providing graduate-apprentices with a diploma or certificate which they would justly hold in great esteem.

This certificate, signed by his instructor, employer, and the chairman of the local Typothetae Committee, combined with the bonus as previously described, not only provides the ambitious boy with something worth while working for, and thus indirectly attracting a better type of boy to the printing industry, but will also serve upon occasion as official notice to some other employer that the



CERTIFICATION

THE APPRENTICE NAMED HEREON IS CERTIFIED FOR PROGRESS IN HIS STUDIES AND WORK AS INDICATED BELOW.

Elementary Composition	
Book Composition	
Tabular Composition	
Advertising Composition	
Job Composition	
Stone Work	
Linotype	
Monotype	
Platen Press	
Cylinder Press	
American Social and Industrial History	
English	
Applied Design	
Pamphlet Binding	
Shop Routine	
Power Equipment	
Health and Safety	
Complete Course	

United Typothetae of America Certificate of Apprenticeship

ISSUED BY U. T. A. DEPARTMENT OF EDUCATION

BY THIS

Certificate of Apprenticeship

DECLARES THAT

has completed the United Typothetae of America Apprenticeship Course of Five years, consisting of both Shop and School work, for a

In Testimony thereof this Certificate is duly signed and issued.

Instructor

Employer

Date

Chairman, Local Committee on Education

CERTIFICATE OF APPRENTICESHIP

Provides space for inserting name and address of employer, name of apprentice and the trade learned. Also provides for itemized certification of progress of apprentice. See page 75.

holder had satisfactorily performed all the requirements of his apprenticeship and was worthy of employment.

The Certificate of Apprenticeship furnished by the U. T. A. Department of Education provides for the entry thereon of the progress made by the Apprentice, and his status as a graduate apprentice, based upon a journeyman standard. When seeking employment, the Employer, by an examination of this Certificate, will know what work the apprentice can do competently and in what work he is deficient, if any.

COMPLETION OF APPRENTICESHIP

Upon the completion of the Apprenticeship term the record of the Apprentice should be subjected to a careful examination by the Vocational Committee, or the Typothetae Committee, in order to determine if he shall be entitled to be rated as a journeyman, or certified as to his actual progress. His instructor and employer should be consulted and their certification of his progress obtained.

The examination should be conducted from the standpoint of

Practical craftsmanship.

Technical knowledge.

Knowledge of the industry in general.

Attitude of mind towards his fellow workers, foremen and employer.

Examination questions for this purpose will be forwarded by the U.T.A. Department of Education upon request.

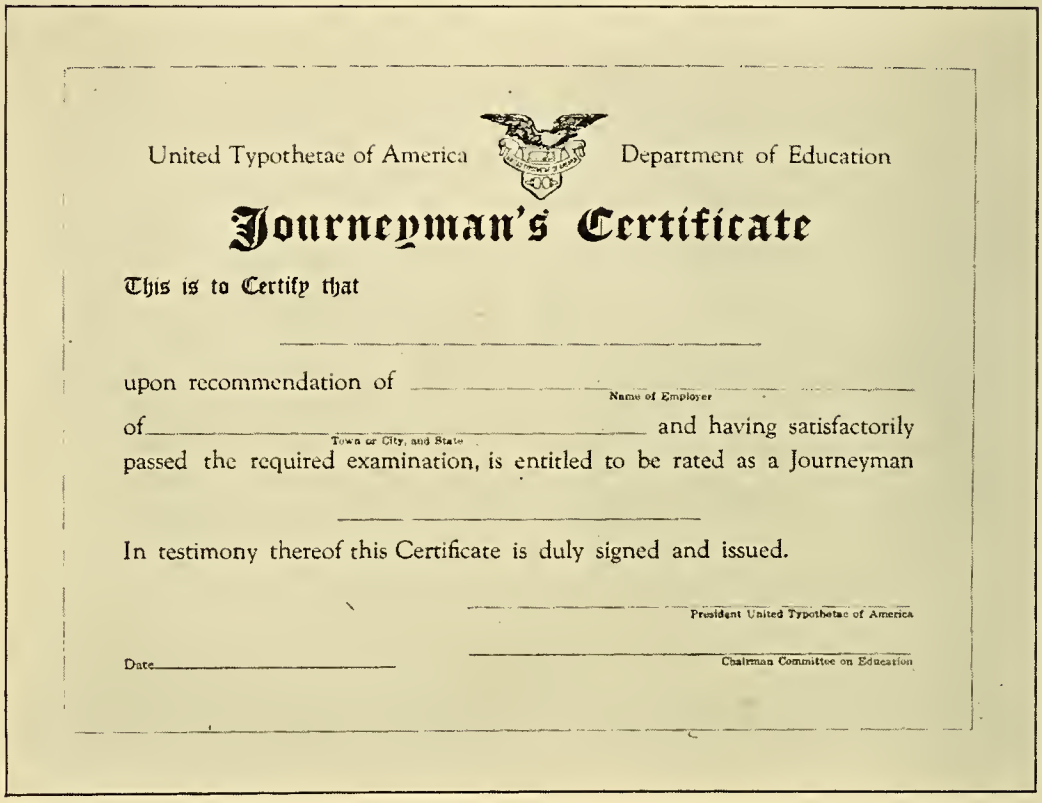
Upon the satisfactory passing of this examination and his obtaining of a 100% rating the Indenture paper of the Apprentice may be endorsed accordingly. In such case a Journeyman's Certificate should be given him, as provided below, also the Journeyman's pay.

In case he shall not receive a 100% rating a Certificate of Apprenticeship should be given him, as provided above, this Certificate stating the status of the holder.

When the holder becomes convinced that he can qualify as a journeyman, he may make application to the local Typothetae Committee for a Journeyman's Certificate, and if he meets the examining requirements, the Journeyman's Certificate and badge will then be issued to him.

TRADE IDENTITY

Thus beginning with the Indenture, and continuing upon its expiration with the Certificate of Apprenticeship, or Journeyman's Certificate, the worker is enabled to feel that he is indeed closely identified with his chosen industry.



United Typothetae of America Department of Education

Journeyman's Certificate

This is to Certify that

_____

upon recommendation of _____
Name of Employer

of _____ and having satisfactorily
Town or City, and State

passed the required examination, is entitled to be rated as a Journeyman

_____

In testimony thereof this Certificate is duly signed and issued.

_____
President United Typothetae of America

Date _____

_____
Chairman Committee on Education

JOURNEYMAN'S CERTIFICATE

To be given to apprentices when they have fully qualified as journeymen. Local committees should be very careful that this certificate is given only to those who have proved their competency.

JOURNEYMAN'S CERTIFICATE

A Journeyman's Certificate should be issued to every Apprentice who shall be certified to for craftsmanship, in accordance with the foregoing. Also the Journeyman's insignia pin or badge, showing the star or the symbol of craftsmanship. See page 74.

This certificate, as will be seen by the illustration, must bear the signature of the chairman of the local Typothetae Committee, and the President of the United Typothetae of America.

In order to protect the organization in certifying, through its President, to the craftsmanship of anyone, by the issuance of this signed Certificate, the U.T.A. Department of Education will require a detailed report upon the applicant, which information the local Committee must furnish in detail.

It can readily be seen that this Journeyman's Certificate will be a valued possession of the one receiving it and its issuance must, of course, be carefully protected from error.

CLASSROOM ARRANGEMENT

It was originally decided to print herein a diagram showing the floor arrangement of classroom, and certain diagrams were prepared for this purpose. Upon further consideration, however, it was deemed best not to print these diagrams, because of the many exceptions to the "layouts" which would have to be made because of shape of room, arrangement of light and other conditions.

The U.T.A. Department of Education will be glad to offer suggestions to any school or local committee upon this point, who will make application therefor. See page 36.

COURSE ON AMERICAN SOCIAL AND INDUSTRIAL HISTORY

A special course comprising twenty-six lessons has been prepared for all, young or old, engaged in the printing business, for the express purpose of laying a sound foundation for direct trade training.

This course is so arranged that, in addition to its being given to Apprentices in accordance with the prescribed Unit Courses as elsewhere outlined, it may also be given to local classes of junior or adult workers, foremen and even employers.

It is a course full of most important fundamental information which should be familiar to everyone engaged in the trade and it should be given the same as other U.T.A. Educational Courses in every locality where there is a Typothetae—and can also be taken as an extension or correspondence course by individuals.

This course is strongly recommended to schools teaching printing. See pages 88-89.

The outline of this Course is as follows:

AMERICAN SOCIAL AND INDUSTRIAL HISTORY

UNIT I

HUMAN AND INDUSTRIAL RELATIONS

LESSON NO. 1—VALUE OF EDUCATION

- Reason for the Course.
- Educational Opportunities for Printers.
- The Skilled Worker vs. the Unskilled.
- The Meaning of Education.
- General Educational and Trade Knowledge.
- Method of Instruction.
- Qualifications for Taking the Course.
- Instruction to be Covered.
- Examination and Certificate.
- Reward for Efficiency.

LESSON NO. 2—IMPORTANCE OF THE PRINTING INDUSTRY

- United States Census Facts—Financial.
- Vital or Personal.
- The Place of Printing Among Skilled Industries.
- The Dependence of Civilization Upon Printing.
- The Dependence of Other Industries Upon Printing.
- The Personal Equation in Printing.
- As a Man.
- As a Citizen.
- As a Producer.

LESSON NO. 3—THE FAMILY GROUPS

- The Family.
- The Clan.
- The Tribe.

LESSON NO. 4—SOCIAL GROUPS

- The Protection of Society.
- The Leadership of the Chief.
- As an Individual Leader.
- As Head of an Organization.
- The Organization of the State.

LESSON NO. 5—HUMAN RELATIONSHIPS

- Every Man for Himself.
- Every Man for the Whole Tribe.
- Peace Between the Members.

Unity of Effort.
Personal Control of Chiefs.
Custom.
Law.

LESSON No. 6—USE OF RECORDS
Progress Impossible Without Some Form of Printing.
Means of Communication with the Absent.
Permanent Records.
Preservation of Information.
Recording of Laws and Decisions.
The Beginning of Wealth.

LESSON No. 7—PRODUCTION AND EXCHANGE
Agriculture.
Cattle Raising.
Making Things (clothes, utensils, weapons, ornaments).
Exchange Between Individuals and Tribes.
Medium of Exchange.
Machinery of Exchange.
Some Form of Printing Necessary for Exchange.

LESSON No. 8—INDUSTRIAL ORGANIZATION
Specialization of Industry.
Producing.
Transporting.
Collecting and Distributing.
Instructing and Industry.
The Trade Guilds.

UNIT II

MAKING OF THE UNITED STATES

LESSON No. 9—THE BEGINNING OF MODERN LIFE
Two Great Events in the 15th Century.
The Invention of Typography.
The Discovery of America.
How Typography Was Invented.

LESSON No. 10—THE DEVELOPMENT OF TYPOGRAPHY
The Development of Typography.
The Effects of Typography.
On Men and Nations.
On Industry and Commerce.

LESSON No. 11—DISCOVERY AND COLONIZATION
The Early Discoverers, Explorers and Settlers in America.
Periods and Types of Colonization.
English, Spanish, French, Dutch.

LESSON No. 12—REASONS FOR SETTLEMENT

Why People Came to North America.
- Opportunity.
- Freedom.
- Adventure.

Four Typical Groups.
- New England.
- Virginia.
- Maryland.
- Georgia.

LESSON No. 13—THE STRUGGLE FOR INDEPENDENCE

The Struggle for Independence.
The Part Played by the Printing Press.

LESSON No. 14—THE FATHER OF HIS COUNTRY

George Washington—"Father of His Country."
- Farmer, Soldier, Statesman, Patriot.

Lessons from His Life.

LESSON No. 15—A STATESMAN-PRINTER

Benjamin Franklin.
- Poor Boy—Printer, Statesman, Diplomat.

The Printers' Counsellor.
Lessons from His Life.

UNIT III

DEVELOPMENT OF THE UNITED STATES

LESSON No. 16—AMERICAN IDEALS

American Ideals.
- Opportunity.
- Freedom.
- Representative Government.
- Liberty Under Law.
- Education for All.

LESSON No. 17—AMERICAN INSTITUTIONS

American Institutions.
- The Town Meeting.
- The State.
- The Nation.
- The Constitution. What it is, and reason for its provisions.

LESSON No. 18—WINNING THE CONTINENT

Expansion—(Geographical Aspects).
- Across the Mountains.

The Mississippi Valley.
The Great West.
The Fight for the Union.

LESSON No. 19—EXPANSION AND CONSOLIDATION

Expansion and Consolidation.
The Indian Trail, Rivers and Lakes.
Roads and Canals.
The Printing Press.
Railroads.
The Electric Telegraph.
The Telephone.

LESSON No. 20—INDUSTRIAL DEVELOPMENT

Expansion (Material Aspects).
Food Production.
Opening of the Mines.
Industries.
Commerce.

LESSON No. 21—SOCIAL DEVELOPMENT

Expansion (Spiritual and Educational Aspects).
Religious Liberty.
Education.
Dissemination of Knowledge, Through Printing.
Love of God, Love of Country, Love of Home.

UNIT IV

ECONOMICS OF THE PRINTING INDUSTRY

LESSON No. 22—ORGANIZATION

Modern Printing Plant Requirements (Personnel and Equipment).
The Worker.
The Worker's Tools.
Supervision (The Foreman and Superintendent).
The Management.

LESSON No. 23—MATERIALS AND NECESSITIES

Modern Printing Plant Requirements (Material and Necessities).
Raw Materials.
Direct Supplies.
Indirect Supplies.
Place, Light, Power, Heat, Incidentals.

LESSON No. 24—ADMINISTRATION

Modern Printing Plant Requirements (Administration).
Plant Organization.
Selling.
Accounting.
Financing.

LESSON No. 25—PRODUCTION

Modern Printing Plant Requirements (Departmental Relationship).
Orderly Progress of Work.
Necessity for Co-operation.
Economical Production.
Division of the Cost of the Product.

LESSON No. 26—CONSERVATION

Knowledge vs. Guesswork.
Purpose vs. Drifting.
Thrift vs. Waste.
Co-operation vs. Selfishness.
The Good Citizen.

EXAMINATION AND CERTIFICATE

When this Course is given as a U.T.A. Extension Course examination papers are to be sent to the United Typothetae of America School of Printing, 1500 East Michigan Street, Indianapolis, Ind., for correction and grading. To those who successfully pass the examinations the United Typothetae of America, through its Committee on Education, will issue a Certificate.

FOREMANSHIP TRAINING

The U.T.A. Department of Education has in preparation a special course of instruction for foremen. This course covers in addition to a review of departmental processes, information pertaining to executive management, shop efficiency, industrial relationship and kindred topics. Also the training and improvement of workmen.

INDUSTRIAL RELATIONSHIP

The U.T.A. Department of Education has prepared a text-book, similar to this one, containing suggestions for establishing and maintaining a practical industrial relationship between the management and worker in the Graphic Arts industry.

Those interested should communicate with the U.T.A. Department of Education, 608 So. Dearborn St., Chicago.

Part VII

COURSE FOR TWO-YEAR VOCATIONAL SCHOOL

Sloth makes all things difficult, but Industry all easy.

—Benjamin Franklin.

COURSE OF STUDY FOR PRINTING IN PUBLIC SCHOOLS

(Two-Year Vocational Course)

Pre-Apprenticeship

INTRODUCTORY NOTE

As a result of a careful study of the requirements essential to competent instruction in accordance with U.T.A. standards, the U.T.A. Department of Education recommends the following outline of a course of instruction in printing which has been prepared in collaboration with a number of experienced and successful instructors in printing.

The course of study here set forth is intended for pupils between 14 and 17 years of age. Consideration has been given in preparing this course to the rapid growth of the Junior High School movement in the United States, and to the fact that pupils are not really equipped to undertake strict trade training until they have completed at least the eighth grade of school life. Any practical arts courses offered previous to this time should be looked upon as prevocational or "finding" courses. It is assumed that pupils who undertake the work here suggested are desirous of mastering the elementary portions of the printer's trade, and that trade conditions so far as equipment is concerned prevail in the school shop; that the one in charge of the classes in printing is not only a teacher, but a printer; and finally, that teachers of allied academic subjects are familiar with the science, mathematics, design, and terminology of the printing trade.

It is believed on the strength of considerable practical experience that such a course as here indicated will give the pupil a good two years' training on the cultural side and will at the same time so prepare him that he will be welcomed by the industry.

COURSE OF STUDY

First Year

FIRST SEMESTER

English (including grammar, composition, spelling, etc.)—one hour daily.

Civics (the U.T.A. Course on American Social and Industrial History)—one hour daily. See page 80.

Applied Arithmetic—one hour daily.

Printing—three hours daily.

SECOND SEMESTER

English—one hour daily.

Design—one hour daily.

History of printing—one hour daily.
Printing—three hours daily.

Second Year

FIRST SEMESTER

English—one hour daily.
Elementary Trade Science—one hour daily.
Design—one hour daily.
Printing—three hours daily.

SECOND SEMESTER

English—one hour daily.
Design—one hour daily.
Elementary Accounting and Bookkeeping—one hour daily.
Printing—three hours daily.

COMMENT REGARDING CONTENT OF COURSES

ENGLISH

The major portion of the time should be given to an intensive study of the mechanics of written expression, i. e., spelling, punctuation, paragraphing, capitalization, proofreading, etc. The work in English should co-ordinate very closely with the shop practice. Literature need occupy but little time because the very nature of the printer's work constantly places him in touch with the best writing of the day.

CIVICS

The U.T.A. Department of Education recommends for this subject the U.T.A. Course on American Social and Industrial History. This course traces briefly from the earliest beginnings the organization of society from the primitive family group to the modern state, showing the basic principles of social organization and the meaning and purpose of government.

In the same way it traces the development of industrial organization from the original single producer to the complicated modern system of specialized occupations.

Placing the beginning of modern life at the invention of typography and the discovery of America, it shows the momentous results of each. The lines of development are traced from the earliest discoveries to the adoption of the Constitution of the United States. Special studies are made of Washington and Franklin.

There is a discussion of American ideals and American institutions. The development of the United States from the thirteen colonies to their present state is traced along historical, social, and industrial lines.

The course closes with a careful and thorough, but simple discussion of the economics of the printing industry.

Throughout the course mere dry recital of fact is avoided, but facts are interpreted and made the means of teaching and emphasizing important fundamental principles.

TRADE ARITHMETIC

Informational as to trade measurements and computations. Practical problems in co-ordination with shop work. (Text-book recommended, "Applied Arithmetic for Printers," by E. E. Sheldon. Vol. 22, U.T.A. Typographic Library. See page 37.)

DESIGN IN PRINTING

The course in Printing Design should aim to afford a clear related knowledge of the fundamental principles underlying good design in the Fine Arts, particularly as applied in the Art of Printing. It should deal with the laws governing balance, harmony, proportion, emphasis, color and their application in orderly arrangement so as to produce effective results. Design and layouts made in class and used in shop work are of great importance. The class work must at all times be held to practical lines. (Books recommended—Part VII, U. T. A. Typographic Library, "Design, Color, and Lettering," six volumes, all by Harry L. Gage. See page 37.)

HISTORY OF PRINTING

The course in the History of Printing should trace the efforts of men to convey thought by means of visible marks from the beginning to the present time. Early writing, alphabets, manuscript books, early printed books, the development of the craft, the enlargement of its scope, and the development of machines and processes should be described. The relations of books and printing to general history, particularly to civilization, literature, art, and industry, should be included.

(Books recommended—Books Before Typography; The Invention of Typography; History of Printing, Part I; History of Printing, Part II; Printing in England; Printing in America; Type and Presses in America; all by Frederick W. Hamilton. Volumes 49 to 55, U.T.A. Typographic Library. See page 39.)

ELEMENTARY TRADE SCIENCE

Elementary Trade Science should consist of such portions of physics and chemistry as might be of direct or indirect use to the printer as well as of those portions of the trade which are of definite scientific character. For example, the chemistry connected with printing inks and their use in the pressroom and theory and rudimentary application of levers, pulleys, screws, gears, wedges,

toggle joints, cam and eccentric, callipers, velocity, weight, temperature, belts and shafting.

ELEMENTARY ACCOUNTING AND BOOKKEEPING

The course should be primarily of trade significance, i. e., it should deal with the simple problems of bookkeeping, cost finding, estimating, and recording which are directly connected with the work in the shop. It is really an insight into bookkeeping and some of the simpler phases of management.

It is not intended to fit the boys for the office end of the business, but to enable them to realize something of the many elements which enter into the selling price of a piece of printed matter and of the way in which such price must be ascertained, in order to develop an appreciation of the value of time and an understanding of the relation of labor cost to the entire cost of production.

SHOP WORK

All practical work should be given in short exercises in plain composition, involving only those operations used in setting book pages and in publishing a school paper. No job work should be done except with strict regard to its educational value. It must be remembered that "setting book pages" includes everything from title page to index inclusive. The work of the course should cover the following ten major operations and be limited to them:

1. Learning the case.
2. Setting the composing stick.
3. Composing lines and paragraphs.
4. Taking proofs and correcting.
5. Setting headings, etc.
6. Making up pages.
7. Imposition of book forms, 4, 8, and 16 pages.
8. Locking up for press.
9. Preparing for press.
10. Making ready for printing. (Setting gauges, underlaying and overlaying, feeding the sheets.)

NOTE: Students' lesson sheets and instruction guides for units covering the above operations may be obtained by approved schools upon application to the U. T. A. Department of Education.

The exercises will, of course, increase in difficulty as the work goes on, but care should be taken not to make the work too ambitious either in quality or extent. In the time allowed the pupil ought to be well grounded in the operations indicated and able to be useful in any shop to which he may be admitted.

Any information that may be desired about the shop work may be obtained on application to United Typothetae Department of Education, 608 South Dearborn Street, Chicago, Ill.

Part VIII

CRAFTSMANSHIP REQUIREMENTS

"One thing at a time and that done well."

CRAFTSMANSHIP REQUIREMENTS

In order to determine the requirements essential to the efficient performance of the duties pertaining to each of the major "trades" comprising the complete printing craft, the following lists have been compiled as a result of much inquiry by the U.T.A. Department of Education.

The instruction outlined in these pages is designed to produce journeymen who shall possess knowledge as detailed below. It will be noted that in the following requirements is included a general knowledge of associated industries, also a knowledge of American and World history, which while not always required by employers, is nevertheless a necessary foundation for modern trade knowledge.

Check your employees from these lists and ascertain if they can perform competently the duties as indicated under each departmental heading.

WHAT A COMPOSITOR SHOULD KNOW

The Lay of Type Cases.
The Use of Composing Sticks.
The Use of Leads and Slugs.
How to Set Plain Matter.
Spacing and Justification.
Proving of Galleys.
General Knowledge of Proofreading.
Proofreader's Marks.
Correcting Errors.
Punctuation.
Division of Words.
Indention.
Distribution.
Cleaning and Care of Type.
Care of Materials.
Old Standard Sizes of Types.
The Point System.
Use of the Type or Line Gauge.
How to Measure Type.
Type Computations.
Job Fonts.
Weight Fonts.
Type Faces.
Rules, Borders, Ornaments, Initials and Their Uses.
Running Heads and Folios.
Arrangement of Chapter Headings.
Treatment of Extracts and Footnotes.
Treatment of Marginal Notes.
Book Composition.
Makeup Materials.
Paging.
Makeup.

Margins.
Handling of Plates.
Storage of Plates.
Tabular Composition.
Type Families and Series.
Type History.
Type Combinations.
Advertising Composition.
Principles of Display.
Knowledge of Balance.
Layout of Copy.
Job Composition.
Placing of Illustrations.
Commercial Forms.
Society Forms.
Religious Printing.
Folders and Booklets.
Catalogs.
Chases and Lock-up Equipment.
Use of Furniture.
Quoins.
Foundry Lock-up.
Press Lock-up—Platen—Cylinder.
Imposition.
Register of Color Forms.
Margins and Signatures.
Patent Blocks and Bases.
Lining Up.
How to Use Composing Room Tools and Appliances—Lead, Slug and Rule Cutters, Mitering Machines, Type-high Planers and Gauges, Saw Trimmers, etc.
General Knowledge of Platen, Cylinder and Other Styles of Presses.
General Knowledge of Type Setting and Slug Casting Machines.
Fundamentals of English Grammar.
How to Use the Dictionary.
Abbreviations.
Reference Marks, Symbols, and Signs
Arithmetic.
Principles of Design.
Typographic Design.
General Knowledge of Color Harmony and Balance.
General Knowledge of Stereotyping and Electrotyping.
General Knowledge of Photo-engraving and Reproduction Processes.
General Knowledge of Pamphlet Binding.
General Knowledge of Book Binding.
General Knowledge of Paper and Ink.
General Knowledge of Type Manufacture.
Technical Terms and Phrases of the Graphic Arts Industries.

The History of Printing.
General Knowledge of American and World History.
General Knowledge of Economics of Printing Industry.
Principles of Time Keeping.
How to Read the Job Ticket.
How to Keep Time Records.
The Value of Time.
How to Co-operate with Fellow Craftsmen.
How to Co-operate with the Management.
Fundamentals of Health and Safety.

WHAT A LINOTYPE OPERATOR SHOULD KNOW

A linotype operator should possess the same knowledge as that required of a compositor, and in addition thereto he should know:

Layout of Keyboards.
Correct Fingering Movements.
Fingering Combinations.
Spacing and Justification.
Setting Various Styles.

INTRICATE COMPOSITION.

Twin Slug Composition.
Broken Measure.
Borders and Dashes.
Advertising.
Price List.
Sports and Markets.
Statistical and Classified.
Two-line Figures.
Panel.
Newspaper Headings.
Programs and Poetry.
Folios and Book Headings.
Directory and Mailing List.
Signs and Symbols.

MECHANISM.

Keyboard Construction.
Magazine Escapement.
Magazine.
Distributor.
Distributor Box.
Assembler Plate.
Assembling Elevator.
Assembler Slide.
Spaceband Box.
Dissembling.
Driving Shaft and Clutch.
Automatic Stopping Pawls.
Controlling Lever.
Automatic and Safety Pawls.
Cams.

Mold Disk.
Justification.
Vise Automatic.
First Elevator.
Line Carriage.
The Transfer.
Second Elevator.
Trimming Knives.
Metal Pot.
Gas Burner.
Temperature Governor.
Pressure Governor.
Composition of Linotype Metal.
The Care of the Machine.

WHAT A MONOTYPE KEYBOARD OPERATOR SHOULD KNOW

A monotype operator should possess the same knowledge as that required of a compositor, and in addition thereto he should know:

Layout of Keyboard.
Correct Fingering Movements.
Letter Combinations.
Use of Unit Wheel and Fixed Spaces.
Use of Justifying Scale and Justifying Keys.
Changing Ems and Units from One Set to Another.
Letter Spacing.
Directory, Tariff and Catalog Work.
Oiling Keyboard.
Operations of Keyboard on Tabular Matter.
General Principles of Monotype Casting Machine.

WHAT A MONOTYPE CASTING MACHINE OPERATOR SHOULD KNOW

The Principles of Machine Operations.
General Knowledge of Printing Operations.
Mechanism of the Monotype Keyboard.
How to Make Keyboard Adjustments.
Justifying Space Cut-out.
Unit Wheel Mechanism.
Em Rack and Scale.
Bell.
Tension Piston Rod.
Unit Rack Stop Guide.
Paper Feed.
Justification Scale Mechanism.
Double Keyboard Switch Control.
Removing Punches.

Oiling Keyboard.
Trouble Finding.
Mechanism of the Monotype Casting Machine.
How to Make Monotype Casting Machine Adjustments.
Control and Regulation.
Changing Moulds.
Care of Metal.
Oiling the Machine.
Changing Ribbons and Transferring Galleys.
Casting Body Type.
Casting Display Type and Spaces.
Casting Lead and Rules.
How to Operate Type and Rule Caster.
Adjustment and Operation of Compressor.
Knowledge of Monotype Metals.
Proper Temperature of Metals.
How to Read the Job Ticket.
How to Keep Time Records.
The Value of Time.
How to Co-operate with Fellow Craftsmen.
How to Co-operate with the Management.
Fundamentals of Health and Safety.

WHAT A PLATEN PRESSMAN SHOULD KNOW

General Knowledge of Elementary Composition.
General Knowledge of Imposition and Lock-up.
The Types and Uses of Platen Presses.
The Mechanism of Platen Presses.
The Proper Oiling and Care of Platen Presses.
How to Make Press Adjustments.
How to Prepare Press for Work.
Kind of Press to Use on Different Classes of Work.
Difference Between Type, Linotype, and Monotype (so he can makeready intelligently).
Adapting Ink to Paper.
Location and Foundation of Presses.
System of Routing and Handling Work.
Use of Numbering Machines.
Color and Color Harmonies.
Making Mechanical Overlays.
Principles of Makeready.
Feeding.

Normal Productive Capacity of Different Types of Platen Presses.
The Composition of Rollers, Their Care and Adjustment.
General Knowledge of Inks.
How to Mix Inks.
Selecting Ink for Paper.
General Knowledge of Paper.
The Mechanism and Operation of Automatic Feeders.
A General Knowledge of Motors and Their Care.
Belts, Pulleys, Their Speed and Care.
Embossing Processes.
How to do Hand and Machine Bronzing.
How to do Scoring, Creasing, Die Cutting, etc.
General Knowledge of Stereotyping and Electrotyping.
General Knowledge of Photo Engraving and Reproduction Processes.
Fundamentals of English Grammar.
Arithmetic.
Proofreader's Marks.
General Knowledge of Pamphlet Binding.
General Knowledge of Book Binding.
Technical Terms and Phrases of the Graphic Arts Industries.
The History of Printing.
General Knowledge of American and World History.
General Knowledge of Economics of Printing Industry.
Principles of Time Keeping.
How to Read the Job Ticket.
How to Keep Time Records.
The Value of Time.
How to Co-operate with Fellow Craftsmen.
How to Co-operate with the Management.
Fundamentals of Health and Safety.

WHAT A CYLINDER PRESSMAN SHOULD KNOW

A cylinder pressman should possess the same knowledge of composition, platen presswork, and general information as that required of the platen pressman, and in addition thereto he should know the following. While many cylinder pressmen do not have knowledge of Platen presswork, they nevertheless should possess this knowledge, and it is recommended that the requirements of a Platen pressman be carefully re-read in connection with the following.

Imposition.
Use of Patent Blocks, and Bases.
Lining Up.

Registering.
Use of Type-high Planers and Gauges.
The Different Types of Cylinder Presses.
The Mechanism of Cylinder Presses.
Preparation of Press.
Press Adjustments.
Principles and Methods of Make-ready.
Feeding.
Normal Productive Capacity of Different Types of Cylinder Presses.
Composition of Rollers, Their Care and Adjustment.
A Technical Knowledge of Inks.
How to Mix Inks.
A Practical Knowledge of Paper.
How to Control Static Electricity.
How to Handle Stock.
The Various Mechanical Overlay Processes.
When and How to Use Slipsheets.
How to Use Mechanical Drying Attachments.
The Mechanism and Operation of Automatic Cylinder Feeding Machines.
The Proper Treatment Required to Get Best Results From:
  Line Plate and Benday Engravings.
  Fine and Coarse Screen Half-tone Engravings.
  Vignette and Silhouette Engravings.
  Duotone and Process Color Engravings.
The Proper Oiling and Care of Cylinder Presses.
The Importance of Proper Pressroom Temperature.
Selecting Press for Different Classes of Work.

The riches of the Commonwealth
Are free, strong minds and hearts of health;
And more to her than gold or gain
The cunning hand and cultured brain.

—Whittier.

Part IX

SELECTION OF APPRENTICES AND SPECIAL SCHOOLS

"The learning of a thing is but the first step. Achievement comes with the later application of that learning."

SELECTION OF APPRENTICES

This should be done with care by a competent person or persons. It should not be left to the individual employer but each candidate should appear before the Typothetae Committee, or a special Selection Committee appointed for the purpose by the combined Committee.

There should be careful investigation of the following physical condition, even though it may entail examination by a physician, the examination fees for which would be a small but most wise expenditure before other expense is incurred in training.

The condition of eyesight.
The acuteness of hearing.
If applicant is tubercular.
Condition of the teeth.
If applicant has adenoids.
Muscular or other physical deficiencies.
Nervous condition.
Tendency to hernia.
General state of health.

There should be the following educational requirements:

1. Where the traditional school system prevails, the Committee should insist upon the completion of the work of the grammar school, or the passing of an examination, simple yet determining, to prove that the applicant possesses a mental equipment equal to that of such a graduate.

2. If the school system makes rational provision for those who leave before sixteen years of age, preference should be given to boys coming directly from the school rather than to those who, having left at fourteen, come from a wandering, two-year employment in low-grade, unprogressive jobs. This preference should be given especially to pupils coming from those schools where the work is planned to give an industrial interpretation to much of the regular school work (where there is no printing department) giving an industrial intelligence.

Apprentices should possess the following personal characteristics:

An earnest desire to learn the trade.
Good moral character.
Good general standing in school.
Mental alertness.
Ability to work without close supervision.
Age approximately sixteen years.
Full average height.
No use of tobacco.
Tidiness in appearance.

GETTING THE PUPILS

Seek your boys, insofar as possible, through the medium of the public schools. Graduates of the Grammar Schools at least. From the High School if possible. Get in touch with the local School Board and principals of the schools and through their co-operation many very desirable boys will be obtained.

In some localities the local Typothetae Committee sought and obtained permission to address the graduating students in the School hall, and also to pass out literature, or mail it to the boys' homes, setting forth what the printing business offers to ambitious young men. The New Orleans Typothetae have prepared a regular "follow-up" advertising plan consisting of letters, leaflets, booklets, cards and posters which are sent to lists of school boys. Those interested can doubtless secure copies on application to the New Orleans secretary.

As a guide regarding what to say or distribute in seeking candidates for printing instruction, the following has been prepared:

THE PRINTING BUSINESS AS A VOCATION

The scope and importance of the printing business is so generally known that it requires no specific presentation. The printing trades are pre-eminent arts. They are an integral and indispensable part of commerce, manufacture, distribution, education, jurisprudence, and social usage in every country in the world. There is no nobler calling or more honorable profession. A business of such importance needs special preparation. No other trade affords a wider field for individual advancement or offers a greater reward for skill and competency.

ORGANIZATION WORK IN EDUCATION

The United Typothetae of America, in common with other organizations in the industry, recognizes the responsibility of the trade in the proper education and training of the men employed in its various departments.

The organization has therefore delegated to a national Committee on Education full powers and resources to organize such work and carry out such policies as may best accomplish competent training in the industry. The work is carried on through a national Typothetae Department of Education, in co-operation with local Typothetae Committees all co-operating in the training of apprentices, by continuation and part-time instruction, by specialized night classes for journeymen, by extension work and special classes conducted by the Typothetae in cost accounting, estimating, salesmanship, etc., by the maintenance of the U.T.A. School of Printing at Indianapolis, and by co-operation with the departments of printing at Carnegie Institute, Pittsburgh, Went-

worth Institute, Boston, and the Graduate School of Business Administration at Harvard University.

WHY THE PRINTING INDUSTRY OFFERS GOOD OPPORTUNITIES

1. Printing is a great and important industry. It ranks fifth among the industries of the United States in volume and value of product.

2. The printing business is rapidly growing and expanding and, therefore, offers continuing opportunities to those engaged in it.

3. The development of the printing industry mechanically and commercially constantly requires more and more skilled men. No industry has shown more rapid advancement in the development and use of labor-saving machinery, often of a very complex type, demanding a very high grade of skill for its operation.

4. A young man trained in accordance with the principles of the craft is always sure of employment.

5. The larger cities have many large plants, so that a printer who desires to change his place of employment is not obliged to change his residence.

6. The work is indoors, under hygienic conditions, healthful, and steady. The eight-hour day generally prevails.

7. The pay of the printer is good, comparing very favorably with that of all other skilled industries.

8. Special efficiency is rewarded by special pay, often far in excess of the regular scale. This is a great advantage over most industries, as a journeyman's pay is generally a fixed, uniform sum.

9. There is good opportunity for promotion to foremanships, superintendencies, and other well-paid positions in the shop and in the office if the worker will prepare himself for them.

10. The nature of the printing industry keeps the intelligence alive because it is less subject to narrow specialization than almost any other. The short hours and the educational nature of the work offer abundant opportunity for study and self-improvement.

11. The young man who improves himself has many opportunities to get an interest in the business as a partner or otherwise.

12. The printing business offers its members more opportunities for education and preparation for advancement than any other.

POSITIONS OPEN IN THE TRADE

Printing is a business that depends primarily on organization for its success, and the nature of the industry is such that each plant has a large number of specialized positions. A partial list of the various occupations in the industry is presented herewith

UNITED TYPOTHETAE OF AMERICA SCHOOL OF PRINTING, INDIANAPOLIS, IND.

for the purpose of visualizing the opportunities afforded by the trade and the road for advancement which is open before every capable employee:

Hand compositor (ad. and job)
Linotype operator
Linotype machinist
Linotype machinist-operator
Monotype keyboard operator
Monotype machinist
Monotype combination
Stoneman
Composing room foreman
Copyholder
Proofreader
Copywriter
Pressman, platen or cylinder
Press foreman
Bindery worker
Stockman and paper cutter
Printing instructor
Cost clerk
Cost accountant
Layout man
Advertising manager
Printing salesman
Estimator
Foreman or superintendent
Manager or proprietor
Assistant pressman, platen or cylinder

This is in no sense a complete list but may suggest to the individual such lines of study and preparation as are essentially desirable in improving his present position or qualifying him for advancement.

SPECIALIZED TRAINING AVAILABLE

The man or boy who wishes to develop skill and ability in the printing industry has a choice of schools and courses of instruction adapted to his desires and his preparation. He may qualify himself as an expert craftsman with opportunity for rapid advancement, or he may prepare himself as a foreman, superintendent, or manager.

His choice must depend largely upon his previous education, and the amount of time he can spend. Schools and courses for all these special purposes are operated in co-operation with the United Typothetae of America Department of Education.

With the view of urging and encouraging the utilization of these facilities to the utmost extent a description of the instruction available is included herewith.

THE UNITED TYPOTHETAE OF AMERICA SCHOOL OF PRINTING, INDIANAPOLIS

The Typothetae School at Indianapolis is one of the oldest and largest technical printing schools in the world. It is maintained and operated by the United Typothetae, supervised by its Department of Education, and approved by all organizations in the trade. Fourteen years of continuous operation with hundreds of successful graduates in the industry evidences the practical effectiveness of its instruction.

The purpose of the school is to furnish the highest type of technical training in printing. It aims to develop individual craftsmanship and skill. The school is operated for the general betterment of the trade and not for commercial purposes.

WENTWORTH INSTITUTE, BOSTON, MASS. SCHOOL OF PRINTING AND GRAPHIC ARTS LOCATED IN LEFT WING.

The organization of the school includes instructors especially qualified for their important duties. Each is an expert in his line of work, and trained as a teacher, which insures practical and thorough instruction.

The physical equipment of the school is appraised at about $130,000.00. It is a large modern printing plant, occupying fourteen thousand square feet of floor space, with departments of hand composition, machine composition, platen and cylinder presswork, and bindery. The equipment includes Linotype, Intertype and Monotype machines, cut-cost cabinets, non-distribution system, Colt, Gordon, and Golding platen presses, Miehle and Babcock cylinder presses, cutters, and bindery machinery. The entire plant is used in the training of students.

There is a constant need for skilled men in the industry and technical training is very necessary in developing trade skill and executive ability.

The school is organized to attain these ends by specialized training. There are unit courses for each line of work. The training is direct and intensive and includes the following general divisions:

(a) Technical courses to enable journeymen in the trade to learn other branches of work or to develop higher individual skill and better craftsmanship.

(b) The intensive training of young men in mechanical processes, materials, office system, estimating, accounting, and principles of management as a basis for executive positions.

(c) The development of practical mechanics to become foremen by short-time intensive instruction as needed by the individual.

(d) Extension courses by correspondence in estimating, salesmanship, cost accounting, and advertising for printers.

(e) The training of apprentices in the trade in regular and part-time classes.

(f) Training of practical printers as vocational teachers of printing for apprentice, school, and trade classes.

(g) Maintenance of night classes for the trade workers in composing and pressrooms.

The school is run on the general basis of a first-class commercial plant. Lectures, exhibits, and demonstrations are closely followed by shop work. The mechanical part of the courses is kept on a working basis.

Courses of instruction are offered in typography, design and layout, paper, color, imposition, proofreading, operation and mechanism of the Linotype, Intertype, and Monotype machines, platen or cylinder presswork, cost accounting, estimating, printing salesmanship. The full General Course (80 weeks) includes work in all departments and may be taken as a foundation course for specialization.

Special Courses for individual requirements may be arranged for any length of time, the school reserving the right to refuse such

CARNEGIE INSTITUTE OF TECHNOLOGY, PITTSBURGH, PA. DEPARTMENT OF PRINTING LOCATED IN RIGHT-HAND GROUP.

training to persons of insufficient qualifications or when the time available is not adequate for proper instruction in the work desired.

Arrangements to enter the school must be made in advance as classes are limited to a certain number to insure thorough training. Application for instruction must be filed and approved. General requirements for admission are: sufficient education to master the instruction desired, and such trade experience as may be necessary for specialized branches. High school education is desirable, but not necessary.

Address all correspondence to the U. T. A. School of Printing, 1500 East Michigan Street, Indianapolis, Indiana. The school is always very glad to furnish additional information and to advise with prospective students in regard to their individual needs and requirements.

U.T.A. SUMMER SCHOOL

The School of Printing also conducts a special Summer School of six weeks providing intensive short-time classes in most of the regular subjects. This affords executives, printing school teachers, and men whose time is limited an opportunity for special training. Those desiring to enter the Summer School should write for information and opening date.

WENTWORTH INSTITUTE SCHOOL OF PRINTING AND GRAPHIC ARTS, BOSTON

Because of the opportunities for young men in the printing industry, the School of Printing and the Graphic Arts at Wentworth Institute was opened in September, 1916. For some time there has been a growing demand for intelligent and skilled workers in every department of this industry, and the need of trained apprentices is constantly becoming more urgent.

Both day and evening classes are conducted. The regular day school has but one and two-year courses. The aim of the school is to give fundamental and general instruction in printing office work and related subjects, and to offer to young men entering the trade the opportunity to learn the things which are becoming each year more and more difficult for the apprentice to obtain in the restricted and specialized condition of the modern workshop.

The courses of instruction at Wentworth Institute include hand composition, English, proofreading, arithmetic, drawing, lettering and layouts; imposition and locking up forms; making ready, platen and cylinder presswork. And, as a special course, engraving on linoleum and poster printing.

Individual instruction is given to all pupils. The print shop has a well-selected Printer's Library, and its books are at the disposal of the students for home study and shop reference.

MEMORIAL HALL, HARVARD UNIVERSITY, CAMBRIDGE, MASS. ONE OF THE MANY FINE COLLEGE BUILDINGS.

No entrance examinations are required for the one-year Day Courses or the Evening Courses. Ability to profit by the instruction is the only requirement.

For the two-year Day Courses, the applicants are examined in English and Practical Arithmetic.

For application blank and catalog, giving detailed description of each course, write to Arthur L. Williston, principal of Wentworth Institute, Boston, Mass.

COURSE IN PHOTO-ENGRAVING

The Institute also has a special course in Photo-Engraving that has the official approval and active support of the Employing Photo-Engravers' Associations.

CARNEGIE INSTITUTE OF TECHNOLOGY, DEPARTMENT OF PRINTING

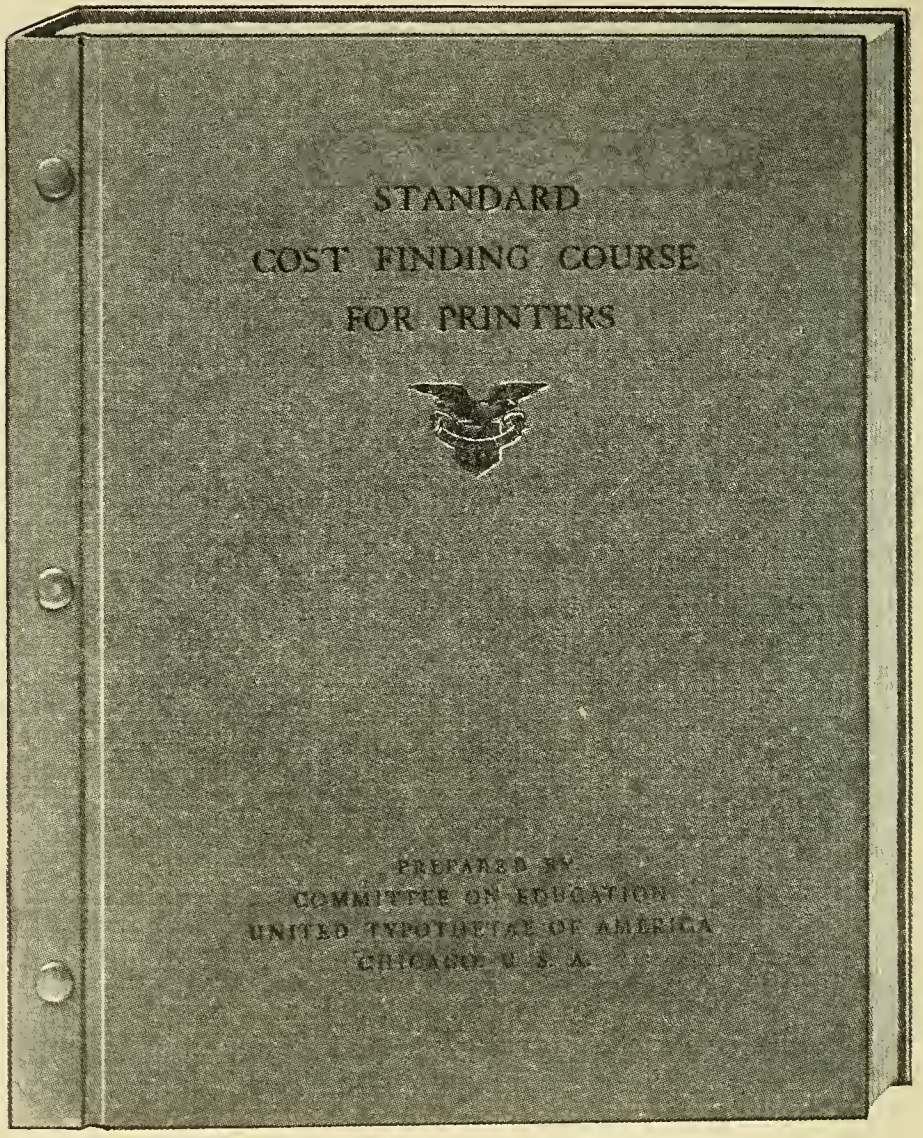
This is a printer's college giving a technical course in printing as a basis for positions of supervision. There is, of course, no schooling that can be substituted entirely for practical experience. But it is possible so to equip young men that they can enter the printing business as assistants to executives, where their training shall be such as to enable them to progress more rapidly than the man who has been promoted from the ranks of the journeyman.

In addition to the need for technically trained men in the printing business itself, the wide and varied fields of publicity work call for an intimate knowledge of the technique of the graphic arts. The young man who develops ability for advertising and selling may find attractive opportunities with publicity departments and advertising agencies if he can offer technical training in the printing processes as part of his equipment. To give such training, the varied activities of the Carnegie Institute of Technology, Pittsburgh, are fertile in resources which, supplementing the mechanical equipment of the Department of Printing, afford unusual facilities for study and achievement.

Graduates from the Regular Course in printing enter positions as assistant superintendents, assistants to managers, estimators, salesmen, advertisers, typographical designers, cost accountants, or executives.

The Department of Printing has a well-equipped shop, with bindery, stockroom, classroom, and photo laboratory. Here the mechanical studies are given and the directly related subjects are considered.

The varied activities of the Institute also offer unusual advantages. The machine shop, drafting room, physical and chemical laboratories, and general studies department of the Division of



U. T. A. STANDARD EXTENSION COURSES

Above shows one of the Standard Extension Courses, as described on page 116. Lessons are in individual pamphlet form, and a substantial loose leaf cover is provided in which to bind the lessons. Lesson sheets are 8½ in. x 11 in., with cover correspondingly larger.

Industries, together with the studios of the Division of Arts, constitute a wide range of resources for the development of the studies which are to round out the printer.

Four school years, of approximately nine months each, are required to complete the Regular Day Course, which leads to the degree of Bachelor of Graphic Arts, entitling the holder of the degree to admission to Harvard Administrative Courses and to graduate courses in other institutions.

The Regular Course is not planned to produce journeymen in any of the contributing trades. The possibilities of study under the technical school conditions, however, frequently appeal to journeymen who can spare nine months or more from their work. Compositors desire to become layout men, to learn the operation of the typesetting machines, or to familiarize themselves with the principles of presswork. Printing salesmen are often eager to acquire a vital background of mechanical as well as of publicity knowledge. Such attractive courses of study can often be arranged to cover part of full-time schedules for a school year or more. The requirements for admission vary somewhat with the course desired.

The applicant for the Regular Course who can present a certificate showing an approved preparatory course is admitted subject only to passing a satisfactory personal interview with the Dean and the Head of the Department of Printing. The applicant must be at least eighteen years of age.

An approved preparatory course must include the following High School credit units: English 3, Algebra 1½, Plane Geometry 1, Physics or Chemistry 1, Elective Subjects 8½, Total units 15.

Entrance examinations are required of the following applicants:

(a) Graduates of high school and of preparatory schools not granted exemption as described above.

(b) Those who can offer the scholastic equivalent of an acceptable high school course, but who are not graduates.

(c) Mature applicants who have not the full scholastic training of a high school course, but who can supplement their scholastic training with sufficient practical work of a technical nature to make a training equivalent to that secured in a high school course. Applicants seeking admission in this way must present certificates showing the amount of their preparatory school work and employer's certificates showing the amount, nature, and quality of their practical work. Such an applicant, in order to be eligible, must be at least twenty years of age.

Applicants for the Teacher's Course must satisfy the same requirements as for the Regular Course, but in the personal interview must demonstrate their interest in becoming teachers, and their personality as suitable for this vocation.

Applicants for Short Courses should be more mature men, at least twenty-one years of age, who can show letters from former

employers or other satisfactory evidence of practical trade experience.

Younger applicants, eighteen years of age or over, who can not meet the scholastic entrance requirements for the Regular Course, may enter a Short Course, and upon completing the required subjects may thus qualify for admission to the Regular Course.

SCHOLARSHIPS AT CARNEGIE

Several local Typothetae, and individuals, have generously established one or more free scholarships at this Printers' College. Some of the scholarships are for tuition only, some include tuition, maintenance at the school and transportation. This is a fine thing to do, and every local Typothetae is urged to help this work along in every way possible. Ask the U.T.A. Department of Education for full particulars.

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION HARVARD UNIVERSITY

This institution provides a two-year course in the principles of business administration which are as applicable to the printing and publishing business as to other business. It trains young men of good intelligence for the management of a business. The Bachelor's degree of a recognized college is required for admission to the course.

This course is to meet the need of men qualified to fill administrative positions. It is a complete program of instruction for those who intend to make management, or business administration, their professional business career, and includes courses in the principles of accounting, industrial accounting, factory management, marketing, business policy, and commercial law.

U.T.A. STANDARD EXTENSION COURSES

In addition to the thorough trade education provided in the above schools the U.T.A. Department of Education has prepared Standard Courses of Instruction which may be taken by correspondence or in the classes conducted by local Typothetae. The courses completed and available at this time are the Standard Course in Estimating, Standard Course in Cost Finding, Standard Course in Cost Accounting, Standard Course in Salesmanship, Standard Course in Advertising. Other courses are in preparation.

Part X

APPRENTICE LECTURES AND SPECIAL SERVICE

"Raise your own seed corn and be sure of a crop worth the tilling."

LECTURES TO APPRENTICES

One of the most effective measures to maintain the interest of apprentices in their work, as well as a medium for imparting much valuable information, is that of regularly organized courses of lectures for apprentices.

These lectures can be given in some central place, an office, work-room, hall or even better at the local Typothetae rooms.

While they may all be given by some one person delegated to do so, yet they will be much more effective if the subjects chosen for discussion are presented by different men, especially employers.

Experience has shown that boys are usually anxious to see and hear the employers of the community; and, if the lecturers are familiar with their subjects and will invite questions after their talk, a fine spirit of friendship and goodwill will be developed that will be to the advantage of all concerned.

These lectures can be given weekly, fortnightly, or monthly. They should be given on the employers' time. Attendance should be compulsory and means should be provided to check the results.

Several cities have used the lecture service for apprentices for several years. All report most excellent results therefrom. They should be organized, directed and controlled by the local Typothetae committee.

In order to give concrete information upon this subject of lectures to apprentices your Committee obtained the complete data regarding lectures given several years ago in Boston by the (then) local Typothetae committee, and presents the main features herewith for the benefit of all interested.

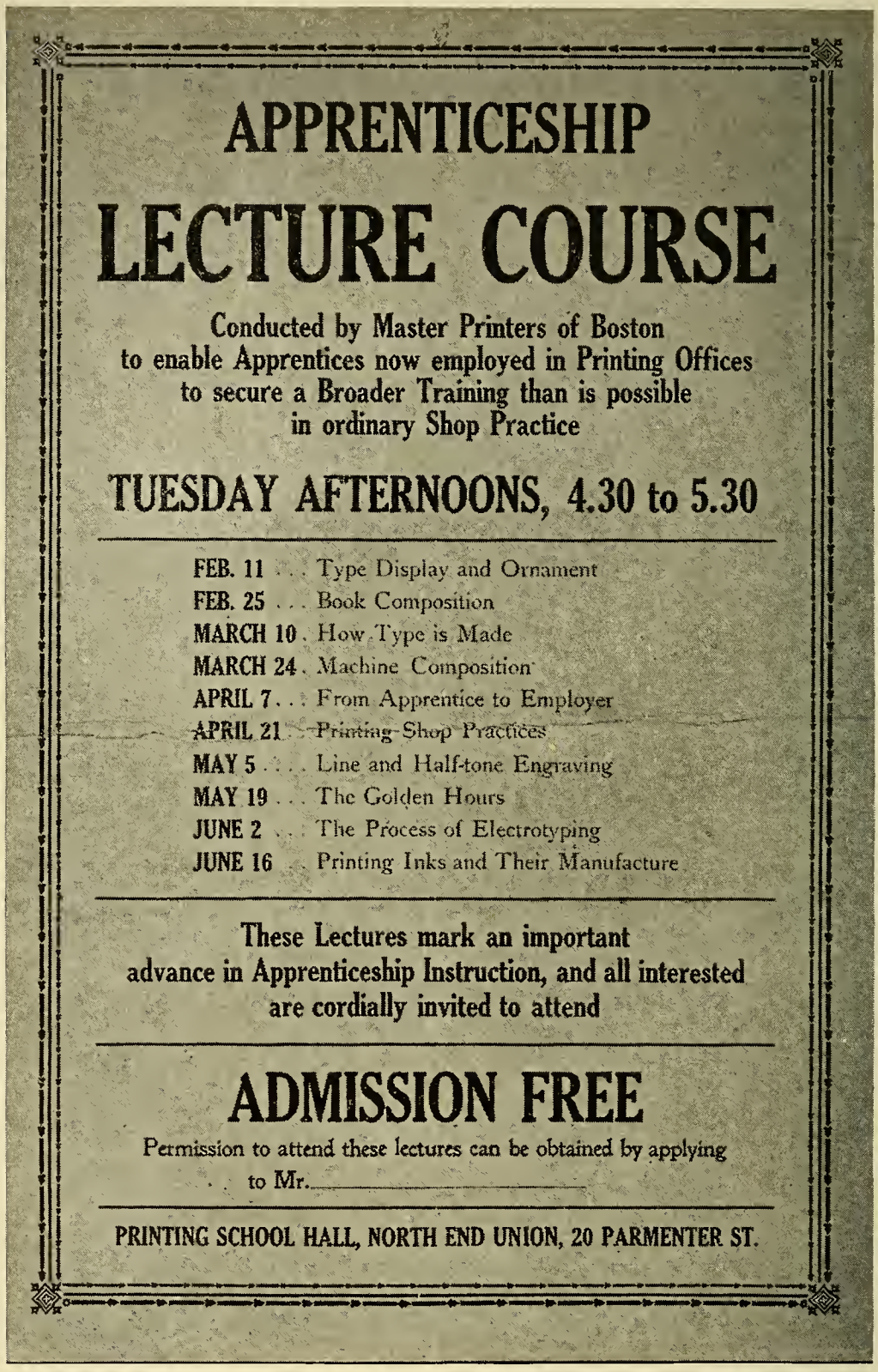
A course was given each year. Each course consisted of ten lectures. The lectures were upon many subjects, all directly related to the printing business.

The subjects of one Course were:

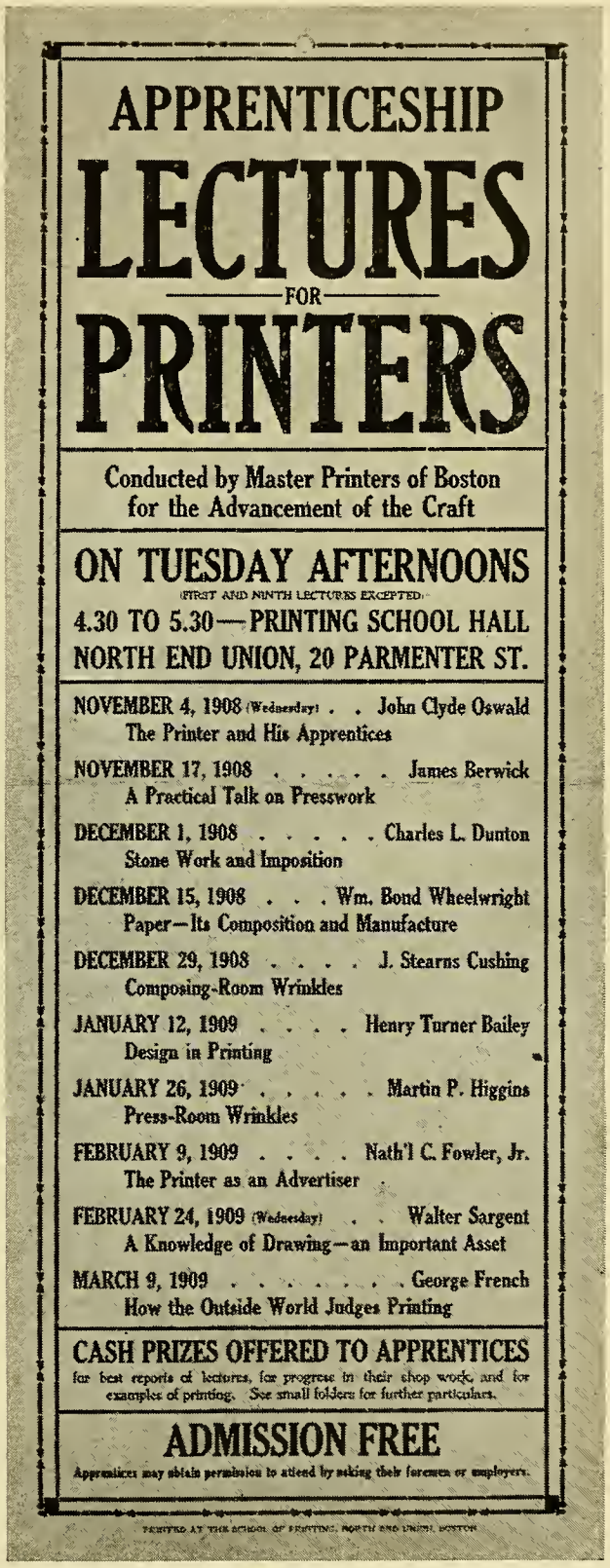
Type Display and Ornament.
Book Composition.
How Type is Made.
Machine Composition.
From Apprentice to Employer.
Printing Shop Practices.
Line and Half-tone Engraving.
The Golden Hours.
The Process of Electrotyping.
Printing Inks and their Manufacture.

The subjects of another Course were:

The Printer and His Apprentices.
A Practical Talk on Presswork.
Stone Work and Composition.
Paper—Its Composition and Manufacture.


APPRENTICESHIP
LECTURE COURSE
Conducted by Master Printers of Boston
to enable Apprentices now employed in Printing Offices
to secure a Broader Training than is possible
in ordinary Shop Practice
TUESDAY AFTERNOONS, 4.30 to 5.30
FEB. 11 . . . Type Display and Ornament
FEB. 25 . . . Book Composition
MARCH 10 . How Type is Made
MARCH 24 . Machine Composition
APRIL 7 . . . From Apprentice to Employer
APRIL 21 . . Printing Shop Practices
MAY 5 . . . . Line and Half-tone Engraving
MAY 19 . . . The Golden Hours
JUNE 2 . . . The Process of Electrotyping
JUNE 16 . . Printing Inks and Their Manufacture
These Lectures mark an important
advance in Apprenticeship Instruction, and all interested
are cordially invited to attend
ADMISSION FREE
Permission to attend these lectures can be obtained by applying
to Mr._____
PRINTING SCHOOL HALL, NORTH END UNION, 20 PARMENTER ST.

Reduced reproduction of Lecture Course Poster put up in the shops. Original was about 14 x 22 inches, and printed in two colors.



APPRENTICESHIP

LECTURES

FOR

PRINTERS

Conducted by Master Printers of Boston
for the Advancement of the Craft

ON TUESDAY AFTERNOONS

(FIRST AND NINTH LECTURES EXCEPTED)

4.30 TO 5.30—PRINTING SCHOOL HALL
NORTH END UNION, 20 PARMENTER ST.

NOVEMBER 4, 1908 (Wednesday) . . John Clyde Oswald
The Printer and His Apprentices

NOVEMBER 17, 1908 . . . . . James Berwick
A Practical Talk on Presswork

DECEMBER 1, 1908 . . . . . Charles L. Dunton
Stone Work and Imposition

DECEMBER 15, 1908 . . . Wm. Bond Wheelwright
Paper—Its Composition and Manufacture

DECEMBER 29, 1908 . . . . J. Stearns Cushing
Composing-Room Wrinkles

JANUARY 12, 1909 . . . . Henry Turner Bailey
Design in Printing

JANUARY 26, 1909 . . . . . Martin P. Higgins
Press-Room Wrinkles

FEBRUARY 9, 1909 . . . . Nath'l C. Fowler, Jr.
The Printer as an Advertiser

FEBRUARY 24, 1909 (Wednesday) . . Walter Sargent
A Knowledge of Drawing—an Important Asset

MARCH 9, 1909 . . . . . George French
How the Outside World Judges Printing

CASH PRIZES OFFERED TO APPRENTICES

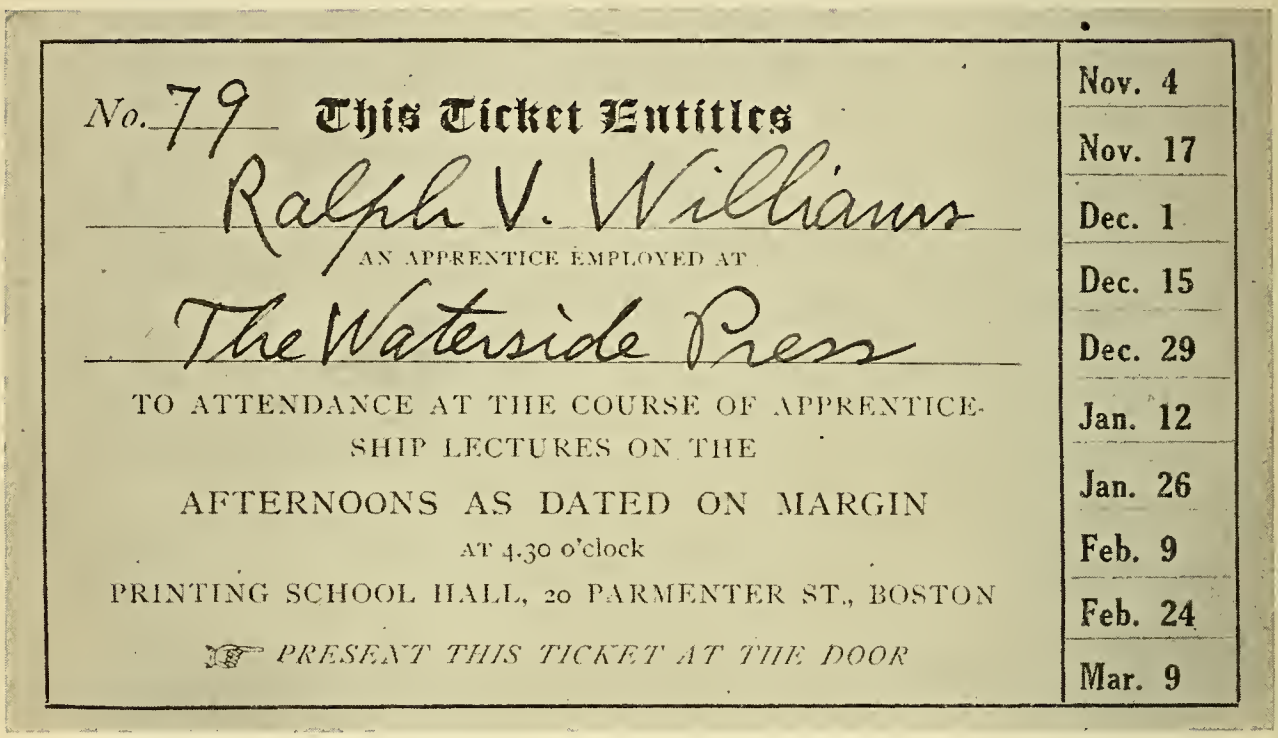
for best reports of lectures, for progress in their shop work, and for examples of printing. See small folders for further particulars.

ADMISSION FREE

Apprentices may obtain permission to attend by asking their foremen or employers.

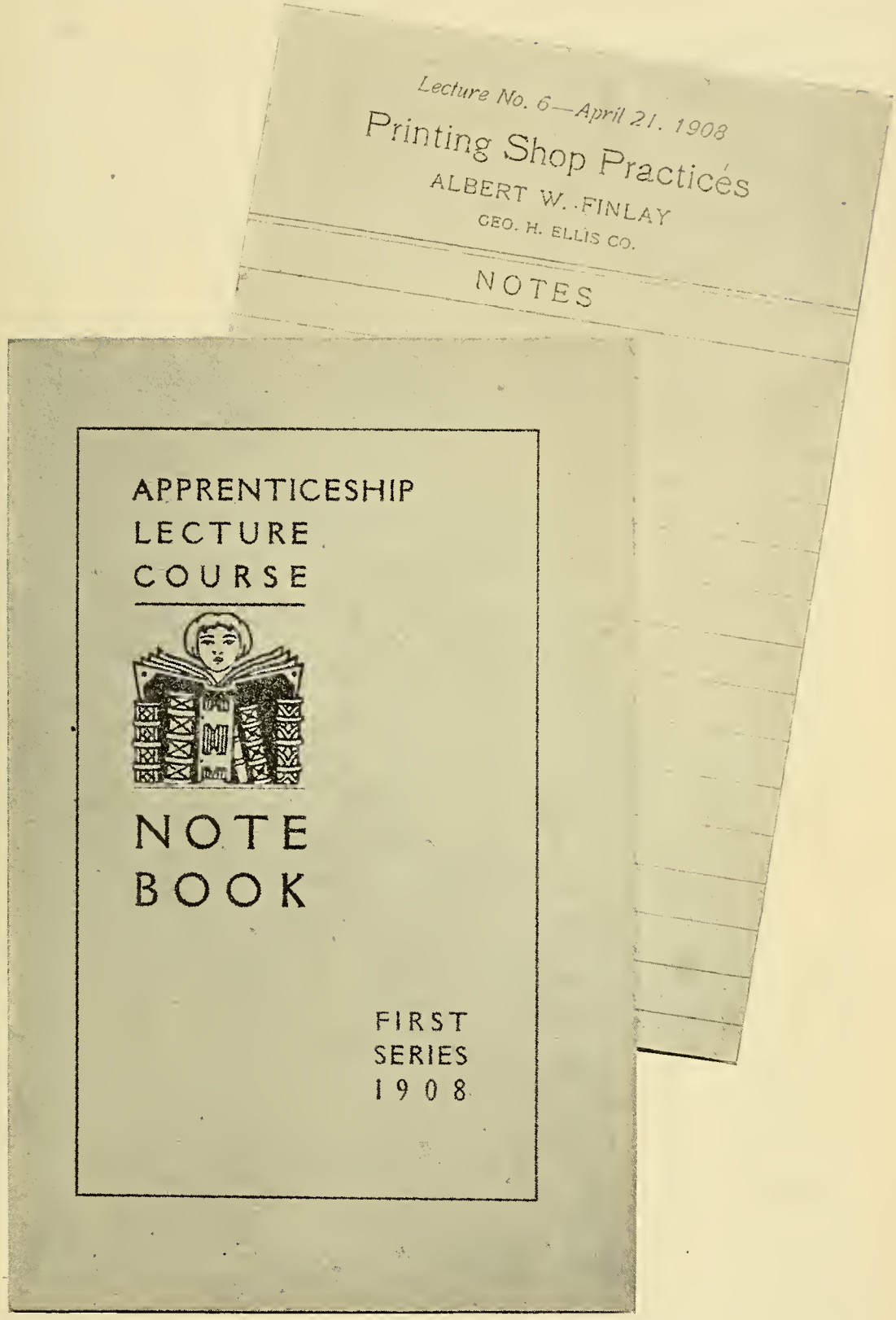
PRINTED AT THE SCHOOL OF PRINTING, NORTH END UNION, BOSTON

Another type of Poster for posting in shops, size being about 6 x 22 inches. Printed on tinted stock, two colors of ink.



LECTURE COURSE TICKET

Actual size reproduction of ticket given to each apprentice before he left shop for lecture, and which doorman at place of lecture punched for attendance on printed date. Apprentice turned in punched card at office on following morning as proof of his attendance.



Reproduction of cover and sample inside page of notebook furnished to attendants at Apprentice lectures. Each lecture subject and date of delivery was printed on a page, with additional blank pages (3 to each subject) for entry of notes. Size of book about 4 x 6½ inches.

Apprenticeship Lecture Course

School of Printing, North End Union, Boston

First Prize -- Pressman's Knife

Awarded to _____ an Apprentice

Employed by _____

For the Best Report on Lecture No. _____

Entitled _____

Delivered by _____, on _____ 190

In the Apprenticeship Lecture Course, Second Series.

Date _____ By _____

Judge of Awards.

This Certificate given to winner of first prize for best article on a single lecture.

Apprenticeship Lecture Course

School of Printing, North End Union, Boston

Certificate of Honorable Mention

Awarded to _____ an Apprentice

Employed by _____

For Second Best Report on Lecture No. _____

Entitled _____

Delivered by _____, on _____ 190

In the Apprenticeship Lecture Course Second Series.

Date _____ By _____

Judge of Awards.

This Certificate given to winner of prize for second best article on a single lecture.

Apprenticeship Lecture Course

School of Printing, North End Union, Boston

First Prize of Five Dollars

Awarded to _____ an Apprentice

Employed by _____

For the Best Series of Notes

As entered in Special Note-book in use at the Apprenticeship Lecture Course (Second Series) from November 4, 1908, to March 9, 1909.

Date _____ By _____

Judge of Awards

This Certificate given to winner of first prize for the best article on the series of lectures.

Second prize of two dollars and a similar Certificate.

Reduced facsimiles of Certificates of Award given for excellence in reports on Apprenticeship Lectures. Actual size was 12 x 10 inches.

Composing-room Wrinkles.
Design in Printing.
Pressroom Wrinkles.
The Printer as an Advertiser.
A Knowledge of Drawing—An Important Asset.
How the Outside World Judges Printing.

The lectures were given every other Tuesday from Fall to Spring, a different speaker each time. The time was one hour in the afternoon—from 4.30 to 5.30. The apprentices from the shops of the city were sent to the lectures by the employers—and on the employers' time. Most of the lectures were illustrated by blackboard, designs, or exhibits.

Posters were printed, giving subjects and dates (see reduced facsimiles) and put up in the shops of the city. Announcements were mailed the day previous to each lecture as a reminder. Cards were issued to the boys, which a doorman punched for attendance, and this card the boy turned in to his employer or foreman next morning in proof of attendance. (See illustration.)

A notebook was given each boy with title of each lecture and ruled spaces for making notes (see illustration), each one being obliged to make notes and later write out a brief report. Reports were checked and simple prizes or Certificates of Honor awarded the best.

TYPES OF LECTURES

As an indication of types of lectures which were given, three of these lectures have been obtained and are reprinted on following pages as a general guide for local Committees:

BOOK COMPOSITION

By J. STEARNS CUSHING

Previous to the time movable type was used by Gutenberg and Faust for printing books, they were printed from engraved blocks, or were in manuscript form.

The first type was made to imitate, as closely as possible, the letters in the manuscript books, and the fonts contained many combination or double letters, such as we have to-day in ff, ffl, ffi, etc., and many abbreviations in addition which are not obtainable today as there is now no need of their use. This attempt by printers to imitate manuscript books was owing to the fact that printed books were not popular among book buyers at first; they were considered cheap and degrading to art and literature. Those rich enough at that time to afford to buy books did not desire to have them made so cheaply that the poorer people could easily get them. The higher education of the common people was not then considered desirable.

Oftentimes blanks were left in the printed page at the beginnings of chapters, to be filled in later by hand with initials drawn in colors; and generally broad margins were left for hand decoration, which were sometimes only partially filled in and sometimes left blank altogether.

I have here a reproduction in colors of a page of one of the first books of Gutenberg and Faust. It was the first book printed from movable type. It is beautifully decorated, but you will notice that only the text is *printed,* and that the initials and marginal decorations were painted in by hand.

I think it would be a very good idea, and would repay the School of Printing and as many of the apprentices of other offices as can do so, to go to the Public Library and look at the old manuscript and printed books displayed there in glass cases. There is much that you would not understand about them, but you would get many good ideas and cultivate your taste by examining them.

You will probably see there books which have had blank spaces left for initials, as mentioned before, and the space has not been filled in by the hand decorator; but in the middle of the blank space is a small capital letter printed, which was intended simply as a guide to the artist as to what letter should be drawn in.

Among the most helpful things to a compositor is a study of spelling, elementary English composition, and punctuation; and for the latter I know of no better or simpler or more comprehensive book than Bigelow's "Handbook of Punctuation." I would particularly warn you against attempting any use of Wilson's work on Punctuation. It is altogether too complicated for practical use and is more apt to confuse than to assist the student. I doubt if anybody but the author ever really comprehended its apparently conflicting rules and hair-splitting exceptions. In my experience as an apprentice and journeyman I found that at the University Press, where Bigelow's system was followed, the compositors were able to set "clean" proofs; which was an impossibility at John Wilson's,* where the Wilson treatise was supposed to be the guide for punctuation.

I also recommend the study of some Beginner's Latin book,—and so much of some Greek grammar as relates to the Greek alphabet and the accents and breathings, which are the marks you see over Greek vowels.

All this is not so much of a task as would appear. One or two evenings spent in merely glancing over the books mentioned will show you how

*At this time (1868-1874) these places were two separate establishments.

much valuable information, directly applicable to your work, can be gained, and how much your labors will be simplified, and how many unnecessary errors you can avoid, by a study of these subjects. Almost all compositors run across Greek words occasionally; they constantly run across Latin words. You will find not only that you can learn to set Greek quite easily, but the knowledge you gain by some study of these books will be of advantage to you in many other ways. These studies are also the best preparation for proofreading.

In the back part of Webster's Unabridged Dictionary you will find much useful information, particularly in the section on the signs used in the various sciences. These signs are classified as follows:

1. Astronomical	4. Mathematical	7. Monetary and commercial
2. Botanical	5. Medical	8. Musical
3. Chemical	6. Miscellaneous	9. Typographical

Every compositor should familiarize himself with the meanings and names of these signs, for he is apt to meet them at any time in his work, and a knowledge of what they stand for will be not only helpful and instructive, but will make much otherwise dry typesetting positively interesting.

I would suggest to Mr. Stewart that he reprint from the dictionary this section on signs for the use of his pupils and other apprentices.

Abbreviations which are interesting but not in common use are the following:

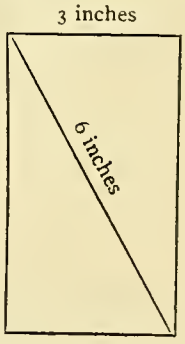
7ber	for	September	from Septem	= 7.
8ber	"	October	" Octo	= 8.
9ber	"	November	" Novo	= 9.
10ber	"	December	" Decem	= 10.

Last, but not least, there is no better book for any printer's study, be he young or old, than De Vinne's "Correct Composition."

When a publisher sends the manuscript of a book to the printer, he generally has a fairly well-defined idea of what sort of a book he desires to produce, as to size and general appearance, and oftentimes he mentions, as a sample to be followed, some book which in type, size, and proportion of page, and in other details, meets his approval. But it also often happens that the customer has not decided upon these details, and desires the benefit of the advice and suggestion of his printer.

So I will talk on some of the everyday questions and practices which confront a compositor, and will try to give some simple rules for their solution.

SHAPE OF THE PAGE



In the absence of other directions for determining the proportions of the type page, an old rule was that the diagonal—that is, from corner to corner of the page—should measure twice the width. You will find that this rule will always give a pleasingly symmetrical page.

Generally, however, the shape of the page is determined by the size of the paper upon which it is to be printed; and the size of the paper is made to suit the size and shape of the book desired by the customer.

LEADING AND SPACING

This is a very important factor in the making of a pleasing page. A safe rule to follow is to have the space between the words correspond to the space between the lines; that is, in a page leaded with two-point or three-point leads, the average space between words should be an en-quad;

but, no matter how widely the lines may be separated, the word-space should never exceed an em-quad. On the other hand, a solid page should have an average spacing of three-to-em spaces. If the page is to be double or triple-leaded, you should space with an en-quad at first, and increase (rather than decrease) this space when necessary to fill out the line.

Lines of ordinary capitals should be spaced with two three-to-em spaces. Fat or extended type requires proportionately wider spacing than thin or condensed type. In all cases the spaces between words should be about equal to the average width of the letters you are setting up.

In one minor matter I am obliged to differ with Mr. De Vinne, in his "Correct Composition," and that is as regards his insistence on spacing such words as I 've, you 'll, 't was, 't was n't, 't is, 't is n't, etc., instead of printing them close; as, I've, you'll, 'twas, 'twasn't, etc. He does not, however, advocate spacing *don't, won't, can't, shan't*, etc.

To be sure, he provides that only thin spaces shall be used between the parts of these words; but even then, in dialect matter, where they occur frequently, the effect is not only unpleasant and confusing to the eye, but the difficulty of reading is much increased by the unnecessary separation of parts of a word which must be pronounced and treated as one word. And in practice I find the "thin-space" provision is more honored in the breach than in the observance, since even in books printed at the De Vinne Press, in nine cases out of ten, the spaces between the parts of these words are as wide or *wider* (not thinner) than the spaces between the words themselves. That this arbitrary spacing is not demanded by the publishers, or by the public in general, is proved by the fact that in thirty years' experience as a printer of books I recall but a single instance of its being insisted upon, and then simply for the sake of uniformity with books of the same series previously made by one of the very few remaining printers who follow such practices as printing *'t was n't* instead of *'twasn't*, but *shan't* instead of *sha' n't*. Why?

SELECTION OF TYPE

Of late years there has been a tendency to use varying styles of type in the same page—as, for instance, old-style running-titles or initials with modern-faced text type; or Caslon with modernized old-style, which is not so objectionable. If you wish to have a really harmonious book page—a page which will please everybody, they cannot tell just why—you will have the whole page, from top to bottom, one style of type, and you will avoid mixed styles. You will keep the faces entirely distinct, carrying out this principle of uniformity of type even to your initial letters. And the general shape of your type, to secure perfect harmony, must conform to the shape of your page. The plainest book faces produce the best results in book pages. But if you have to choose between fat and lean type, remember to use fat type for an extra wide page and thin type for a narrow page. This applies to job work also.

RUNNING TITLES

Avoid startling effects and too much prominence. If the running title is set up in capitals of the text type, or one size smaller, a pleasing result is almost certain; or if lower-case is preferred, use a size larger (roman or italic) than the text type, but of the same series. If capitals are used, and the title is short, a thin space between the letters will improve its appearance.

Some years ago an Englishman named Morris, who was an artist, a writer, a poet, a student, and incidentally a socialist, decided that books were not

made to suit him; so he started out to make them to his taste, and he made some decided changes in prevailing customs in book-making. He designed his own type, used only hand-made paper, and printed his books himself on a hand press. The pages were very closely set in heavy-faced type, and looked rather black; but the mechanical execution was nearly perfect. He had heavy decorative borders in the margins, and in many ways he imitated the old manuscripts to which I have drawn your attention. His books became celebrated, but they were very expensive. They attracted a great deal of attention, and book-collectors now pay almost any price for copies of them. But their merit was mostly in their artistic and mechanical execution. As books for readers they were not a success, being too closely set to be easily read, and the mind of the reader was too apt to be distracted from the thought of the author by the unusual typography and over-decoration of the pages. A natural result of their success was that a lot of people tried to imitate Morris and make "marvellous" books; but most of them only succeeded in making absurd books, which had neither the merit nor perfect workmanship nor any other creditable feature of Morris's books.

The distinguishing marks of these books (by would-be Morris imitators) were startling effects in running titles, by the use of very large or odd or black type, put in unexpected places; half-titles in corners or tops of pages, where you would expect to find them in the centre; and the use of any old heavy-faced type for the text, set as solid as possible, with disproportionately broad margins — waste space which could much better be utilized between the words and lines for the sake of legibility; and many other fads and freaks calculated to attract attention. It certainly was "the arrogance of ignorance" in book-making while the fad lasted.

The best evidence of the fact that good taste and harmony in printing, as well as in other matters, appeal to most people, is that this era of freak book-making was doomed to an early grave, and the art of printing has again returned to a fairly normal condition.

EXTRACTS AND NOTES

Extracts — One size smaller type and thinner lead than text; or, if text is thin leaded, set solid. If the text is solid, the extracts should be set in two sizes smaller type.

Footnotes—Generally three sizes smaller type than text, with thinner lead; and solid with solid text.

Cut-in and Marginal Notes—Type should generally be one size smaller than footnotes, unless more prominence is desired; in which case some small condensed antique or boldface may be used. In the case of cut-in notes it is best to set them up in advance, afterwards placing them in the text as it is set up. Do not attempt to space out to even lines in either cut-in or marginal notes, but leave them uneven at the right side.

BLANK LINE AT BOTTOM OF PAGE

Our customers often do not understand why printers always put a blank line at the bottom of a page. This blank line probably originated at the time it was the custom to repeat the first word of the next page at the bottom of the previous page, and a spare line was necessary for that purpose. Nowadays it is utilized for signature numbers and letters, and for folios or page numbers when necessary, as, for instance, on pages not carrying running titles.

Another reason for it is that among all first-class book-printers it has always been a rigid rule that a break-line (that is, the end line of a paragraph) must not come at the top of the page, and for that reason it was

considered allowable to run it into the blank line at the bottom of the page. But if the break-line was nearly a full line, it was customary to go back a few lines and drive over enough words to make another line, and then to carry the two lines to the top of the next page. That a break-line should not come at the top of the page has always been one of the rules which book-printers, until recently, have considered a part of their printing religion. Since Monotype and Linotype machines have been used for book-work, however, I regret to say that this rule is often broken.

THE USE OF INITIALS

Where plain or ornamental initials can be appropriately used, a great deal of taste can be shown in their selection. If a highly ornamented initial is used, be sure that the strength of the lines of the initial letter is in keeping with the face of the text type. A weakly defined initial letter, surrounded and obscured by a mass of ornamentation, will not look well with a strong-faced text type, such as the Scotch face. If a plain two-line or three-line initial letter is used, it should conform to the shape of the page, and to the face and shape of the text type selected. The top of it should align with the top of the capital letters of the first line of text type, and the bottom, if possible, should align with a line of the text. While this rule is often broken, it is still a breach of good taste to use an old-style initial letter with modern-faced type, or vice versa; and nothing (except eccentricity) can excuse the use of an italic initial with roman text.

CARE IN JUSTIFICATION AND EVEN SPACING

The best time to exercise this care is while the line is in the stick; and before passing on to the next line you should look it over carefully for typographical errors, and then space and justify it. This work never can be done easier or better than just at this time. In spacing out the line be careful also to distribute the extra space equally between the various words, and not all at one end of the line, which, if done, makes one side of the page look very closely set and the other side correspondingly open.

CORRECTING ON GALLEY

If there are only a few simple alterations to make, such as turning reversed letters, or substituting one letter for another of the same size, it is only necessary to loosen the side stick of the galley and carefully lift with a bodkin the letter to be changed. But, as a general thing, by far the best plan is to lift each line requiring change into your stick. In this way you can get perfect justification, and the corrections can be made more quickly than in any other way.

The bodkin is an essential tool to the compositor, and if carefully used will do no harm; but tweezers should never be used to lift letters out of a line.

IMPOSITION AND MARGINS

(These subjects were illustrated by means of printed and folded sheets, and on the blackboard.)

PUNCTUATION

This is so lengthy a subject that I can but touch upon it here. The other day I noted an amusing instance, which shows how necessary some punctuation is at times. In a large Boston store the inscription under a picture of Admiral Dewey and Captain Gridley at Manila reads, "Fire Gridley

when you are ready." History gives no particular reason why Gridley should have been "fired" on that occasion. Of course, the inscription should have read, "Fire, Gridley, when you are ready."

One other point on this subject. The question often arises in the mind of the compositor as to which side of the punctuation mark he should place the quotation marks. The best rule I can give for his guidance is this: When only part of the sentence is quoted, the final quotation marks should precede the punctuation mark; but if the whole sentence is quoted, the final quotation marks should follow the punctuation mark. For instance:

Did you mean it when you said "He is a brute"?

And he said, "Why do you ask me this question?"

The question to be decided is, do the punctuation marks apply to the whole sentence or to only so much of it as is quoted? The above applies where the punctuation marks are either the colon, semicolon, exclamation point, or interrogation point; but it does not apply to the period and comma, which in all cases should precede the final quotation marks.

LENGTH OF LINES IN HEADINGS

Do not feel obliged to fill out the first line and turn over only a small part of the heading, as:

but rather divide it as follows:

AMERICAN AND ENGLISH SPELLING

The difference between American and English spelling is not great, and is mainly in such words as *honor, favor,* etc. The English custom is to spell these words with the *u,* as *honour, favour,* etc. An Englishman once told me that an *honor* would not be an *honour* to him without the *u.* The American *ize* becomes *ise* in English spelling.

It is a rather interesting fact that Americans are apparently not at all sensitive about these differences, and will generally accept either spelling; but the English people are, and few English publishers will accept American books unless they are printed with the English spelling. So it is often necessary to go through a set of American plates and change them accordingly for the English market.

Now, boys, in closing I want to give you a little heart-to-heart talk.

Just in proportion as you put your earnest and best efforts into your work, just so far will you meet with success. Remember there is always plenty of room at the top; and remember, also, that you are the natural successors of the employing printers of to-day, and that if you will work faithfully and perfect yourself in the branch of business you elect to follow, you are bound to succeed and prosper.

Theories alone will not help you, but a superior knowledge of, and application to, your trade will land you in the best positions. Never in the history of the world has there been so good an opportunity as now to realize on merit.

Now is the time to decide whether you will neglect your opportunities and be one atom in a cloud of dust blown hither and thither by the breath of circumstance,—sometimes called "the army of the unemployed."—or whether you will be *a master of your trade,* and thereby the "master of your own destiny"—self-respecting, independent, and always in demand.

FROM APPRENTICE TO EMPLOYER

By THOMAS TODD

My dear boys, I shall begin my feeble remarks with the old chestnut of the school teacher in Germany, who invariably, when the scholars came in the morning, would bow low to them; upon being inquired of as to his reason for doing so, he replied, "They may be burgomasters some day." And so, in like manner, I bow low before you who are apprentices; because by and by you may be among the master printers. You are not called upon to endure the tribulations that we old apprentices had to undergo. None of you, as yet, have had to get up two or three hours before daylight, and shiveringly go down to the office, build a fire, thaw out the rollers that are filled with frost, holding them up to the fire to get the frost out, yet needing to be very careful about approaching too near the fire, lest your rollers should melt. I doubt if one of you have ever had that experience. I know that none of you have ever had the experience of washing rollers in potash lye, when your hands were so chapped with the cold that the lye would get into the cracks in your hands, and you would suffer torture. I question if any of you ever saw forms put into a rocking trough, where the trough rocked on a pivot in the centre, where the kettle of lye was poured upon the form, and the trough rocked to and fro until the lye was thoroughly incorporated into the form; then the face of the type was scrubbed with a brush, then all the lye drawn off, and clear water substituted; the process of rocking the cradle again gone through with until the lye was supposed to be thoroughly washed out, and the form lifted from the trough, put on the stone, and unlocked to distribute. When the form was unlocked, you could take a handful of type and throw it across the office before it would drop apart. O, the fingers of the apprentices! Scarred, and marred, and mutilated—worse even than the baseball players of today.

APPRENTICES OF THE PAST

We had an apprentice, or rather, I should say my father did, by the name of Joyce, who afterwards became a lieutenant in the United States Navy. No printing office could hold him very long. He was a dare-devil little fellow, and once for three cents he took off his boots and stockings and, taking a pail, walked quite a little way down to the town pump through the snow, drew a pail of water and brought it back to the office. He thought he had earned his three cents, and his fellow apprentices thought so, too. Again, upon being stumped, for three cents, he put his flaxen-haired head into an ink keg. His mistress (for all apprentices boarded with the master and mistress) simply went wild over the possibilities of her pillow cases, until his flaxen hair became once more restored to its natural color.

It was the province of my father, as the oldest apprentice, to thrash all the younger apprentices for misdemeanors. In thrashing this Joyce, the boy never whimpered, and all the reply he made to father's work was simply, "You damn nigger, you!"

The apprentices of those times were not so tenderly nurtured as the apprentices of the present time. One of our delectable enjoyments, as apprentices, was to roll the forms of the newspapers that we used to print, and it was no slight matter. The rollers must be kept in first-rate order, ink must be put on by the brayer, and the handle of the cylinder turned to distribute the ink very rapidly, because when the form was

presented before the rollers, the ink must be all distributed, and there must not be a second of time to hinder the working of the press. The pressman was obliged by the canons of the trade to print a white token (240 sheets) in an hour. He had to fly his frisket, take off his sheet, replace another, throw the frisket down, roll the tympan under the press, pull the lever, throw it back, roll his form back, lift his tympan, and fly his frisket for each impression. I have heard it said that with the old Ramage presses, where two impressions were taken of each form, the pressman attained the same speed of 240 impressions an hour. How he did it is more than I can understand. That was before my time.

NECESSITY OF BEING CIVIL

An apprentice in those times (I do not know how it is now) was obliged to keep a civil tongue in his head, else punishment, swift and dire, would fall upon him. An apprentice was once "sassy" to the pressman, who thereupon rolled his form under the platen, swung himself around behind the press, took the apprentice by the collar with his right hand, and with his left hand took the brayer from the ink table, and rolled the apprentice's face with ink. That occurred under my own knowledge, although I was not the victim, for I want it distinctly understood at *that* time I was not saucy. How far I may have attained proficiency in the art now, under the tuition of other master printers, it is not for me to say.

APPRENTICES' GRAFT

After the forms were printed on the press and the papers folded, then the apprentice had a route of papers to carry. If he served the patrons of the paper well, at New Year's time the editor would work off a lot of doggerel and call it poetry, the apprentice would set it up at odd times, and print it, and then on New Year's Day he would present to each patron a copy of the screed and receive in return either a fourpence-ha'-penny or a ninepence, and in some extreme cases, where the patron was very rich, a quarter of a dollar. That was about the only event in the life of the apprentice in those days that was joyously rememberable.

NEW IMPROVEMENTS IN PRESSES

Another little enjoyment of the apprentice, so different from what we have now, was to print wedding cards and other delicate stationery on a 24 x 36 hand press. By putting on bearers all over the bed of the press, he could arrange his impression very well. But even under these circumstances he could only draw the lever of the press around half way, or at some imaginable notch on the cross bar. Woe betide him if he forgot for a single impression and pulled the bar clear around. Then the foreman indulged in profanity, forcible and prolonged; for that font of type was entirely ruined. I have printed business cards on a double-medium hand press for $2.50 per thousand. It would take a day to do it, but then I was an apprentice and I was of no account. When a Yankee card press was invented, it was a godsend to the craft. It is an obsolete thing now. I doubt if one of you have ever seen one, unless perhaps one may be in some museum; but it was a delicate little machine with rollers six inches long and one inch in diameter and a lever that stood upright above the press. The worker would take the lever in his left hand, with his right place the card in the gauge, then pull down the lever, thus making an impression, push back the lever, and the card would drop out, while a new card would be placed in by the right hand of the operator. It seemed to us perfectly marvelous, and as though nothing further

need be desired in the printing trade. My wedding cards, fifty years ago, were printed on such a press.

NO LABOR UNIONS

We apprentices knew nothing of the nine-hour law, nor yet of the eight-hour rule that is expected to be about to occur soon; but we worked until we were told to go home. The night before publication day I have often worked until three o'clock in the morning, and the compliments I have received from the foreman and the hands for my faithfulness would be enough to satisfy even the most self-appreciative person; but next morning, after all had worked all night, the atmosphere in the office was entirely different. I was, in the language of the foreman, a damn little cuss. I was no longer a little hero.

TRICKS ON APPRENTICES

Such little pleasantries as sending the apprentice out to borrow roman bodkins, italic small caps, italic thin spaces, and such trifles, were delightful. Type lice were not invented then. One of the realities of life, and one considered necessary in those times, where sorts could not be bought, was to send one apprentice over to interview the apprentice of another office, and borrow surreptitiously say a half dozen brevier capital M's, or some other types that were indispensable to complete some job on the press. They used to tell about a man named Moody, who used to do business in the city of Boston, that he would send to borrow a dozen of some particular letter, pica size; if the reply was made that they had no pica, but they had nonpareil, he would answer that that would do just as well; and when you saw the job issued from his printing office, you would understand why one would do just as well as the other.

When I was an apprentice there was a kind of combination border used, which had a solid line running through a mass of filigree, and by changing the solid lines, curves and hollows, lettering, names, business, and such horrible things could be traced through the border. If we were real good, the boss would let us set up our names in those combination borders and we would print them on bronze paper, with gold bronze, and show them to our admiring friends as a *chef d'oeuvre* of art. But those were halcyon days.

RESPONSIBILITY EARLY IN LIFE

When I was twelve years old, my father had a printing office in a country town, having lost his fortune and started anew, and my father, my brother and myself were his whole force. My father was stricken with paralysis, my brother had a bleeding spell, and I was the only book and job printer in the entire establishment. By laying a series of type boxes on the floor around the press, I could set up jobs and work them off on the press, and customers used to come into the office and bring work, out of curiosity to see me execute it. No one could be more thankful than myself that not a single copy of the work at that time has ever been preserved.

STARTING OUT FOR MYSELF

When I was thirteen years old I was let out as a finished workman, and it nearly finished me. My boss at that time was formerly lieutenant-governor of the State, who took up printing almost as a pastime, and who was a kind-hearted gentleman. One day a man came rushing into the office in wild confusion and haste, and said, "Old McConnell's mare has

been stolen, and we want some posters printed right straight off, so we can stop the thief, if possible." The job was turned over to me. I was proud to be designated as the one to do that piece of work. So in all haste I set up the job in great primer antique (and it took all of that font we had), put a scarehead upon it, locked up the form and started to carry it to the press. When I lifted the form from the imposing stone, it slumped. I was in despair and, boy-like, would liked to have run down to the mill pond and drown myself; but my boss, who, as I said before, was a gentleman, rose from his desk and re-distributed the type in the case and I set the job over again. At the same time he was talking in the calmest, gentlest way possible of matters that were entirely independent of the work in hand, and so eased me down. It is not too late in life to commend his example to other master printers, as well as to foremen generally. Well, I suppose I must indulge in a little personal reminiscence —I have not so far.

When I was in my fourteenth year I came to the village of Boston and let myself out as a compositor, receiving the munificent wages of a shilling per thousand ems: 16⅔ cents. I earned a living, however, and at the age of sixteen, owing to the disaffection of the foreman, who had a quick temper, I was installed in his place as foreman.

FOREMAN'S DUTIES

Now let me tell you what I did as foreman. I set all the advertisements of the weekly newspaper, read the proof, made up my paper, and sent the forms to the press. Then the papers were brought back to the office and folded. My brother and I folded the papers. Afterward, when we ceased folding papers, it was my duty to address the mailing list. Then the bundles were done up in the office and carried off to the post office. One time the boss came tearing into the composing room and, in a most frantic way, said, "Thomas, they have pied a form down to the press room; what shall we do?" I replied, "The only thing I know of, is to go and pick up the type!" Then, with a look of stern indignation, he turned on his heel and shouted, "Thomas, this is no time for levity." I don't suppose it was.

We had a change of proprietors about a year or two after that, and the new proprietor, the moment the papers were signed, which happened to be upon mailing day, stripped off his coat, rolled up his sleeves, and turning to me, who was admiral in charge, asked: "What shall I do now?" I said, "Perhaps you had better help address these papers." He was desirous of making a good appearance in the matter, but I was an adept—not in making an appearance, but in work. As a consequence, I was able to direct about six papers to his one. Utterly disgusted, he turned to me and said, "I'm afraid, sir, you are showing off," a thing which any one who knows me knows is the farthest from my nature.

The time came when it seemed perhaps impossible to hold me in the smaller lines of a foreman, so I took a contract to set the paper upon which I had been employed, at a certain sum per thousand ems. After a time that did not seem to work off all the surplus energy I had in the house, so I added a job office—a very small one. It was a very carefully selected office, however, and there was hardly a thing in it that was displaced because it was useless. From that time on, I always found people who were willing to have me do work for them. I very rarely have lost a customer through disaffection, and when I lost one I have found two came to the funeral. So cheer up, young fellows, and do not think the heavens are going to fall on your heads if a customer should come in

and say that your prices were too high, and that they must look up another and a cheaper man.

GENERAL ADVICE

Now, my boys, all this time you have been working toward the counting room; but you have not yet reached it. When you start in business for yourselves, if you are wise, you will buy a very small printing office, and simply buy the essentials, the indispensables; and then it will be large enough and cost enough, for I am supposing that you are starting an office without bringing your sisters and your cousins and your aunts under tribute. You will begin to do all the work in your office, including opening the office in the morning, sweeping, dusting, building fires, and putting the office in a neat condition.

I want to say now, in capital letters: ALWAYS BE NEAT AT YOUR OFFICE. Never let it look like a neglected mother-in-law, but always as neat as you can make it, with everything in place, including the office towel. When you begin to have the work come to you, whether by canvassing, or otherwise, and you begin to find that you are not able to do all the work, drop the most menial part of your work, gradually leaving off the sweeping, and the dusting, and the building of the fires, and the errands, because you can buy muscle better than you can buy brains. After a while you will have to drop your distributing. After a while you will drop your cutting of paper. Again you will need to drop going of errands, or going outside of your office to canvass for work or to see customers, except in extreme cases. You will send your messengers to do your errands, because, as I just now remarked, muscle is cheaper than brains, and thus you will go on dropping one outside matter after another until after some seventy-five or a hundred years, you may be able to sit at your desk all the time and simply count your ducats. You may mount on your wings like Pegasus, only be careful and remember that, like Icarus, you may get too near the sun and the fastening of your wings may melt, and you be obliged to make a most unfortunate flop—as a good many printers have done; but I hope you will not be among the number. When you are in the counting room, remember that but one policy will work well, a manly, straightforward one. Tell the truth to your customers and dignify your profession. At the same time, do not give away the details of your business, for outsiders cannot understand those things and will take one-sided views of such matters.

THE SAME CONTINUED

Do not decry your rivals, for it may react upon you. Let me give you an incident. A man not far removed from my office, who runs a small establishment, remarked, in giving a price to a customer, "Now, if you should take this piece of work to Todd, he would charge you so much," naming a price higher than his own. The customer coolly inquired, "Where does this Todd keep his office?" and the unfortunate printer had to give the address of Todd's office. The customer came immediately to me, has proved to be a very profitable one, is perfectly well satisfied with his work and the prices, and it was only a long time after he had been my customer that I learned of this incident. Remember, my fellow craftsmen, that you are expecting to be in business for a long time, and you wish to keep every customer who comes to you. In these days of fierce competition this is only possible by making it worth the customer's while to patronize you. If he can get the work done better and cheaper and prompter by some other printer, he will leave you without a pang; if, on the other hand you treat your customer well, serve him promptly, charge him a reasonable

living price, advise him for his best interest, even if it is contrary to your own at times, you have not only retained a customer, but obtained a friend.

ADVICE TO FELLOW CRAFTSMEN

Likewise, ye masters—for this affords me a fine opportunity to say some things—remember whom you are instructing. Give your apprentices full information, not partial information; instruct them thoroughly in the matters that pertain to the craft, because every one of your apprentices is liable to be a master-printer, and, let me whisper tenderly in your ear, it is possible that he may be a better master-printer than you are yourself. Give him a fair field. Give him full instructions. Show that you have an interest in his work and in its being well executed; show him that there is more to you than a simple slave driver, who undertakes to get the most out of his work people, without giving an equivalent. Once in a while it would be well for you to put on your reasoning cap and imagine yourself in the place of your apprentice, and then draw from your well-trained and fertile imagination the inference that your apprentice should draw as to the kind and quality of information that he wished imparted to him. Do not be afraid to give your apprentice information, and give it freely, for in this way you make a friend who might otherwise be a business antagonist. We are dealing in futures—not in the stockbrokers' sense, but in our future living, one with the other. In the future, perhaps near, perhaps far away, your apprentice of today will meet you somewhere round the festive board, or in some other common place of meeting, and you will associate with him on an equality. Therefore, do nothing that shall separate you from your fellow and remain as always his friend. An apprentice to whom I gave some considerable information, perhaps thirty years ago, always hails me as "Uncle Thomas" to this day, and although he is doing a large business in the city, he and I are as chummy as though we had both swept the same office, washed the same rollers, eaten our lunch on the same cutting machine, and gone home together.

PRINTING PRESSES & PRESSWORK

By James Berwick

It was not till the year 1800, or about three hundred years after the invention of printing, that any improvements were made in the printing press. The Franklin press (so called because Benjamin Franklin worked on it), to be seen in the upper room of the Old State House, is perhaps the oldest style in existence today. We also have one of these treasures at the Norwood Press. Then came the Ramage press, one of which can be seen at the rooms of the Franklin Typographical Society. The Franklin press has a frame made of wood, and a bed also of wood, with a slate slab to place the form on, and a wooden platen. This platen was only half the size of the form, so that when an octavo form was on the press the bed had to be run in only half way first, the bar then pulled over, then run in the rest of the way and pulled again on the other half of the form, to complete the impression on the whole sheet.

IRON HAND PRESSES

The first iron press was invented by Earl of Stanhope. In this press the platen was as large as the whole form. The old printers, when I was a boy, talked about a two-pull press and a one-pull press. They had all worked on the old wooden press. I think that the house of R. Hoe & Company made the first iron press in this country. Later than this time they were made by Isaac Adams of South Boston and Otis Tufts of East Boston. In my early days all the nice work was done on the hand presses. The Riverside and University Presses had about a half dozen presses each.

FIRST CYLINDER PRESS

The first practical cylinder press was built in England by two young Germans, König and Bauer. These men interested Mr. Walter of the *London Times* in their invention and he furnished the money and a room and the press was built in secret, as they were afraid that the laboring people, with their prejudice against machinery, might destroy it before it was finished; and one night when the hand pressmen were waiting to go to work they were informed that the paper was all printed on the new press. König and Bauer went back to Germany, and the king gave them an old cloister at Oberzell near Wartsburg, encouraged them, and today the König and Bauer concern have grown from the crude "Walter Press" of 1812 to be one of the largest in the world, making the very latest styles of modern fast presses.

INK BALLS AND ROLLERS

On the hand presses the ink was put on with "ink balls," the workman putting a dab of ink on one and then striking them together, distributing it evenly over the surface; then going over the form, dabbing it on till the whole form was covered.

The power press caused the invention of the roller. This was first made of the same material as the dabbers—some soft material on the inside and covered with sheepskin. This was followed by the glue and molasses roller, and some forty years ago glycerine was substituted for molasses, the roller of the present day.

BOOK PRESSES

As New England had at one time almost all the authors in the country, Boston and Cambridge naturally did most of the book printing, and very properly the first successful book press was invented here by Isaac Adams.

Ruggles also took out patents, and others, but the Adams was for many years the only *book* press.

Mr. A. K. P. Welch of the University Press, Cambridge, went to Europe and studied the methods there and came home and practically invented the modern stop-cylinder, and I think that the original presses of his are running there today. Then came the two-revolution, which has become the most popular press of the present day for almost every description of printing.

Before this the cylinder press was considered only fit for poster and other rough printing. The machine shops had no machinery to do finished work, and the gears were all cast with the teeth on. Mr. Welch introduced his stop-cylinder in the later fifties or early sixties, but as almost all editions of books were small in those days (500 copies being a good average) it was much cheaper to work them on Adams presses, these stop-cylinders being used almost wholly for illustrated work.

EARLY JOB PRESSES

S. P. Ruggles, who was a contemporary of the Adamses, invented several small or job presses and monopolized for a while that line of business. There was the "Engine" press, where the form was upside down and the type continually dropping out; the "Combination," the "Bill-head" press, and the "Diamond" card press. Seth Adams, a brother of Isaac, also invented a job press, and then came Mr. Gordon with his press, putting all the others out of business. As you all know the Gordon and Universal presses, I will not talk about them; and this brings to an end the subject of presses and we come to the making ready of the form.

PAPER PRINTED DAMP

In the old times almost all paper was dampened before printing—book, newspaper, and even rough-surfaced writing papers. Almost all papers came in folded quires and the quires were run through a trough of water. This was part of the morning's work. The water would soak through the paper in a few hours and in the afternoon the quires had to be opened out on a board and the pile of paper put under pressure overnight to be ready for next day.

The packing—as you would call it today—was a cloth or rubber "blanket," as we called it. The impression dented into the paper and when the ink and paper was dry enough it was put into a hydraulic press to be smoothed out.

We all owe a great deal to the job pressman. He was the first one who used a hard or paper packing, having a small press easy to experiment with; and the book pressman began to follow his example by putting a few sheets of paper in his packing over the blanket, and continued to increase the number of sheets till he finally dispensed with the blanket altogether and used nothing but paper, and now hard packing is the rule.

MAKING READY

When you put a form on your press to get ready, be sure your press is running well, well oiled, and, above all, keep it clean. A dirty press is a sign of a shiftless pressman. Put in the right number of sheets for a blanket and have your tympan sheet drawn tight. If it is a cylinder press, be sure that you will have just the right amount of packing on the impression cylinder when your last sheet is drawn on tight, so that the bed and cylinder will run together; that the bearers on the bed are properly adjusted—just a paper or so above type high, and if plates or

blocks are in your form, see that they also are just type high. You should always have a type-high gauge handy for this purpose. Have your rollers in good order and properly adjusted. Poor rollers will not do good work, and I think the pressman of today does not give the attention to his rollers that he should. When I was a job pressman I always kept on hand at least two sets of rollers for each press. This was not extravagance, but economy. And, while running, keep the color uniform through the whole number—a good plan is to keep a sample color sheet to compare by. Nothing gives a pressman who is interested in his work more satisfaction than to run through a pile of his printed job and see that the color is uniform. After you have learned to make a job ready in good shape, it will be some years before you can keep a uniform color.

GOOD MATERIALS NEEDED

One of the best pressmen I ever knew, when I was young, said to me: "I find it difficult to do good press work when I have everything of the best to work with." Now, while a good workman can do wonders with poor material, it always pays to have everything of the best. In the first place, it is poor economy to use poor ink. You will require several kinds for the different papers and cards you may use, and have the best of its kind. It is a mistake to try to get a good color with an ink that has not the color in it; you have to put on too much and are liable to have the job offset or smear, while with a first-class ink you would run a less quantity and still have a full color and the work clean.

HALF-TONES AND GOOD PRESSWORK

About thirty years ago the printing business was revolutionized by the introduction of the half-tone engraving. There were other photographic processes, but the only one worth talking about was the half-tone. This demanded a smooth, close paper, and the coated came on the market and is still the only paper on which half-tones can be printed with the best results.

I believe that nothing will give a printing office a good reputation quicker than good presswork. Fifty years ago Harper & Brothers had the best reputation in the United States. The Harpers were pressmen.

Then when Welch of the University Press introduced stop-cylinders and the old publishing house of Fields, Osgood & Co. issued a line of books under the supervision of Anthony, the wood engraver, the University jumped in the front rank; and the fine presswork on the *Century Magazine* did more than anything else to make De Vinne known as the first printer in the United States. You can put all the artistic instinct you have in presswork. While a man may print type or cuts of machines good, without the artistic instinct he will fail on landscapes. He should know how a picture should look, and I think at the present time when illustration plays such an important part in all catalogues, the pressman is a very important factor in our business.

As a successful pressman, you should, whenever you put a new job on the press, look at the clock and calculate how long it should take you to make it ready and how long to run it off, and try to do it in the time. Don't be afraid of doing too much. If some slow coach in the office tells you that you will get no thanks for doing so, tell him that you are working for money and position, not thanks, and you will in all probability get all these.

A BIBLIOGRAPHY FOR STUDENTS OF PRINTING

The following suggested titles have been compiled by the U.T.A. Department of Research; selection can be made therefrom as desired, or the U.T.A. Department of Education will suggest a list, if desired. State amount of money available for this purpose. Don't forget also to have files of the Printing Trade Magazines on hand.

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SUBMIT YOUR PLAN

After the local Typothetae Committee has been organized, has studied this book of suggestions, and, as a result of its preliminary work, has drawn up a plan for the training of apprentices in its locality, *submit this plan in detail to the United Typothetae of America Department of Education for review.*

This is important as it is the desire of the United Typothetae of America to have the best instruction possible in your locality, and upon a United Typothetae of America standardized basis.

In case there are doubts regarding the formulation of a plan of instruction, write the United Typothetae of America Department of Education giving full particulars of your situation and a plan will be developed and submitted for your consideration.

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